FILE NO. 030-9806

TOSHIBA

SERVICE MANUAL

COLOUR TELEVISION C80 Chassis 2181TB, 2180TD

TABLE OF CONTENTS

PTER 1 GENERAL ADJUSTMENTS	
SAFETY INSTRUCTIONS	3
SET-UP ADJUSTMENT	4
SERVICE AND DESIGN MODE	. 6
ELECTRICAL ADJUSTMENT	. 7
CIRCUIT CHECK	12
PTER 2 SPECIFIC INFORMATIONS	
SETTING & ADJUSTING DATA	13
LOCATION OF CONTROLS	14
CIRCUIT BLOCK DIAGRAM	16
CHASSIS AND CABINET REPLACEMENT PARTS LIST	17
PC BOARDS BOTTOM VIEW	25
TERMINAL VIEW OF TRANSISTORS	28
SPECIFICATIONS	29
APPENDIX:	
CIRCUIT DIAGRAMS	
	SET-UP ADJUSTMENT SERVICE AND DESIGN MODE ELECTRICAL ADJUSTMENT CIRCUIT CHECK PTER 2 SPECIFIC INFORMATIONS SETTING & ADJUSTING DATA LOCATION OF CONTROLS CIRCUIT BLOCK DIAGRAM CHASSIS AND CABINET REPLACEMENT PARTS LIST PC BOARDS BOTTOM VIEW TERMINAL VIEW OF TRANSISTORS SPECIFICATIONS APPENDIX:

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" INSTRUCTIONS BELOW.

X-RAY RADIATION PRECAUTION

 Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is (A) kV at zero beam current (minimum brightness) under a (C) V AC power source. The high voltage must not, under any circumstances, exceed (B) kV.

Refer to table-1 for high voltage (A), (B) & AC voltage (C) (See SETTING & ADJUSTING DATA on page 13)

Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure in this manual. It is recommended that the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.

- The only source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
- Some part in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

SAFETY PRECAUTION

WARNING: Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

- 1. An isolation transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
- 2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
- 3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list.

Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-ray radiation or other hazards.

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

SET-UP ADJUSTMENT

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed. Perform the adjustments in order as follows:
 - 1. Color Purity
 - 2. Convergence
 - 3. White Balance

Note: The PURITY/CONVERGENCE MAGNET assembly and rubber wedges need mechanical positioning. Refer to figure 1.

* There are no adjustment of purity and convergence in some picture tube (Unified with purity magnet)

COLOR PURITY ADJUSTMENT

NOTE: Before attempting any purity adjustments, the receiver should be operated for at least fifteen minutes.

- Demagnetize the picture tube and cabinet using a degaussing coil.
- 2. Set the brightness and contrast to maximum.
- 3. Use a green raster from among the built-in test signals.
- Loosen the clamp screw holding the yoke and slide the yoke backward or forward to provide vertical green belt (zone) in the picture screen.
- 5. Remove the Rubber Wedges.
- Rotate and spread the tabs of the purity magnet (See figure 2.) around the neck of the picture tube until the green belt is in the center of the screen. At the same time, enter the raster vertically.
- 7. Slowly move the yoke forward or backward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.
- 8. Check the purity of the red and blue raster.

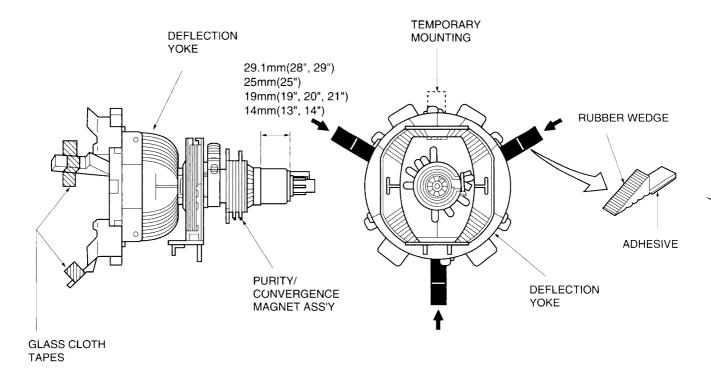


Figure 1.

CONVERGENCE ADJUSTMENTS

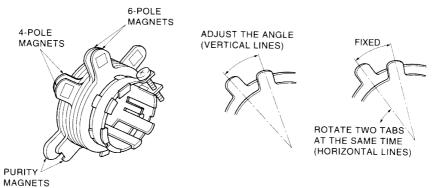
NOTE: Before attempting any convergence adjustments, the receiver should be operated for at least fifteen minutes.

CENTER CONVERGENCE ADJUSTMENT

- Use the cross-dot pattern from among the built-in test signals.
- Set the brightness and contrast for well defined pattern.
- Adjust two tabs of the 4-Pole Magnets to change the angle between them (See figure 2.) and superimpose red and blue vertical lines in the center area of the picture screen.
- Turn the both tabs at the same time keeping the angle constant to superimpose red and blue horizontal lines at the center of the screen.
- Adjust two tabs of 6-Pole Magnets to superimpose red/ blue line and green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.
- Repeat adjustments 3, 4, 5 keeping in mind red, green and blue movement, because 4-Pole Magnets and 6-Pole Magnets have mutual interaction and make dot movement complex.

■ CIRCUMFERENCE CONVERGENCE ADJUSTMENT

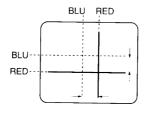
- 1. Loosen the clamping screw of deflection yoke slightly to allow the yoke to tilt.
- 2. Temporarily put a wedge as shown in figure 1. (Do not remove cover paper on adhesive part of the wedge.)
- 3. Tilt front of the deflection yoke up or down to obtain better convergence in circumference. (See figure 3.) Push the mounted wedge into the space between picture tube and the yoke to fix the yoke temporarily.
- 4. Put other wedge into bottom space and remove the cover paper to stick.
- 5. Tilt front of the yoke right or left to obtain better convergence in circumference. (See figure 3.)
- 6. Keep the yoke position and put another wedge in either upper space. Remove cover paper and stick the wedge on picture tube to fix the yoke.
- Detach the temporarily mounted wedge and put it in another upper space. Stick it on picture tube to fix the yoke.
- After fixing three wedges, recheck overall convergence.
 Tighten the screw firmly to fix the yoke and check the yoke is firm.
- Stick three adhesive tapes on wedges as shown in figure 1.



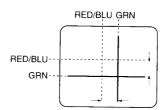
CONVERGENCE MAGNET ASSEMBLY

ADJUSTMENT OF MAGNETS

Figure 2.

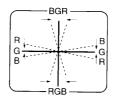


4-POLE MAGNETS MOVEMENT

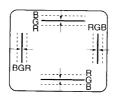


6-POLE MAGNETS MOVEMENT

Center Convergence by Convergence Magnets



INCLINE THE YOKE UP (OR DOWN)



INCLINE THE YOKE RIGHT (OR LEFT)

Circumference Convergence by DEF Yoke

Figure 3. Dot Movement Pattern

SERVICE AND DESIGN MODE

1. ENTERING TO SERVICE AND DESIGN MODE

1) Press 않 button once on Remote Control.

2) Press 않 button again to keep pressing.

3) While pressing the 않 button, press Vol Down ⊿ − button on TV set.

[Item S/D Data]

(Service mode display)

2. KEY FUNCTION IN THE SERVICE MODE

The following key entry during display of adjustment menu provides special functions.

A single horizontal line ON/OFF: - / - - button (on Remote)

Selection of the adjustment items : CHANNEL ▲/▼ (on TV or Remote)

Change of the data value : VOLUME ∠ +/- (on TV or Remote)

Initialization of the memory (QA02) : CALL + CHANNEL button on TV (▲)

I²C BUS ON/OFF : CALL+VOL \triangle + UP. ASM start : CALL+VOL \triangle - DOWN.

Automatic VCO adjustment : 0 button.

"RCUT" selection : 1 button

"GCUT" selection : 2 button

"BCUT" selection : 3 button

"CNTX" (or "SCNT") selection : 4 button

"COLC" selection : 5 button - - - Color thickness correction "TNTC" selection : 6 button note: Displayed differently

"TNTC" selection:
6 button
note: Displayed differently as shown below, de"SECAM R-Y offset" selection
7 button
pending on the setting of the receiving color

"SECAM B–Y offset" selection 8 button system.

COLP (PAL) COLC (NTSC) COLS (SECAM)

CAUTION: Never try to perform initialization unless you have changed the memory IC.

3. SELECTING THE ADJUSTING ITEMS

Every pressing of CHANNEL ▲ button in the service mode changes the adjustment items in the order of table-2.
 (▼ button for reverse order)

Refer to table-2 for preset data of adjustment mode. (See SETTING & ADJUSTING DATA on page 13)

4. ADJUSTING THE DATA

1) Pressing of VOLUME \checkmark +/- button will change the value of data in the range from 00H to FFH. The variable range depends on the adjusting item.

5. EXIT FROM SERVICE MODE

1) Pressing POWER button to turn off the TV once.

■ INITIALIZATION OF MEMORY DATA OF QA02

After replacing QA02, the following initialization is required.

- 1. Enter the service mode, then select any register item.
- 2. Press and hold the CALL button on the Remote, then press the CHANNEL ▲ button on the TV. The initialization of QA02 has been complated.
- Check the picture carefully. If necessary, adjust any adjustment item above. Perform "Auto search Memory".

CAUTION: Never attempt to initialize the data unless QA02 has been replaced.

ELECTRICAL ADJUSTMENTS

Model C80 Series (Reference factory adjustments)

Item: [AFT],[LAFT],[RAGC],[LAGC]

The entire set (including the micro) must be powered for this alignment

For sets using the TB1231N Chroma Device the following method must be used:

UK / German Sets (1480TB,1480RB,1480RD,2181TB,2180TD) initial batches only:

- 1) Disconnect IF Pad, and set service and design mode.
- 2) Apply IF Carrier Signal at 38.9MHz/95dBuV (39.5MHz/95dBuV for UK) to the cct side of the IF pad.
- 3) Ensure Bus-Data is as follows:

[AFT] = 40H

- 4) Attach DVM to Q501 #4 and record the voltage.
- 5) Using a ceramic trimmer adjust L161 until steep change of voltage between 0.2V and 4.8V (approximately).
- 6) Set the coil to get 2.5V (i.e. the centre of the slope).
- 7) Disconnect the DVM
- 8) Select RAGC in the service mode and adjust the RF-AGC of the tuner becomes 4V by pushing VOL ∠-/+ buttons on the remote.
- 9) Disconnect IF Signal Generator
- 10) Re-solder IF Pad.

For sets using the TB1238N Chroma Device the following method must be used as it can be adjusted automatically: (Every model after initial batches above)

UK / German Sets:

- 1) Disconnect IF Pad, and set to service and design mode.
- 2) Apply IF Carrier Signal at 38.9MHz/95dB uV (39.5MHz/95dBuV for UK) to the cct side of the IF Pad.
- 3) Push POS O button on Universal HHU then wait for "AFT OK" to appear on screen.
- 5) Disconnect IF Signal Generator
- 6) Re-solder IF Pad.

French Sets:

- 1) Ensure Position {n} is in the UHF Band in any system
- 2) Disconnect IF Pad and and select position {n}, and set service and design mode.
- 3) Appy IF Carrier Signal of 38.9MHz/95dbuV to the cct side of the IF pad.
- 4) Push POS O button on Universal HHU then wait for "AFT OK" to appear on screen.
- 5) Select RAGC in the service mode and adjust the RF-AGC of the tuner becomes 4V by pushing VOL ∠-/+ buttons on the remote.
- 6) Select LAGC in the Service mode and input the data value same as RAGC mode.
- 7) Disconnect IF Signal Generator and re-solder IF Pad.

[There will be no French sets using the TB1231N V/C/D IC, <u>all</u> sets will eventually use the TB1238N device. The automatic system DOES NOT require a 34.47MHz signal for SECAM L alignment, as the frequencies are generated internally.

(The Universal HHU commands are Listed on the end of this document including AFT/AGC)

Item [SCNT] NO ADJUSTMENT

Name: SUB-CONTRAST

SETTING:

Input Signal:

Measurement Place:

Adjustment Method:

Standard:

Item [BRTC]

Name: SUB-BRIGHT CENTRE

SETTING: Set user control setting to STANDARD 1

Input Signal: SUB-BRIGHT SIGNAL Measurement Place: On Picture

Adjustment Method: Adjust the number of Black Steps visible on the picture

Standard: 4th bar from black 1.5bars

Note: Adjust last

Item [COLP] NO ADJUSTMENT

Name: SUB-COLOUR CENTRE (PAL)

SETTING: Input Signal:

Measurement Place:

Adjustment Method:

Standard:

Item [TNTC] NO ADJUSTMENT { [TnTC] on REMOTE model }

Name: SUB-TINT CENTRE (M-NTSC Mode)

<u>SETTING:</u>

Input Signal:

Measurement Place:

Adjustment Method:

Standard:

Item [COLC] NO ADJUSTMENT

Name: SUB-COLOUR CENTRE (NTSC / PAL)

SETTING:

Input Signal:

Measurement Place:

Adjustment Method:

Standard:

 $Item\ [RCUT], [GCUT], [BCUT], [GDRV], [BDRV], [SCREEN\ VR]$

Name: CUT-OFF/DRIVE ADJUST

SETTING:

[RCUT],[GCUT],[BCUT] data set to 20H

[GDRV],[BDRV] data set to 40H Set to Horizontal Line mode

Input Signal: White-Balance Signal (Reduced Dual Window Patten)

Measurement Place: On Picture

Adjustment Method:

Raise the screen VR gradually and stop in the place where the line of either R or G or B shines slightly. Set the VR position at that point.

Raise the CUT-OFF data of the two colours that did not appear first and stop when the line becomes white.

Come out of Horizontal Line mode and using white balance gear adjust [GCUT],[BCUT] in Low-Lights (4 Ft-Lbts) and [GDRV],[BDRV] in High-Lights (30 Ft-Lbts) until Standard achieved in both conditions.

Standard:

103cd/m²(30 Ft-Lbts)

8750k +0.0075uv

17cd/m²(4 Ft-Lbts)

8750k +0.0020uv

(Automatic may be possible, [GDRV],[BDRV] might be deleted on 14 on future models)

Item [SRY],[SBY]

{ [SR],[SY] on REMOTE model }

Name: SECAM R-Y/B-Y BLACK LEVEL SETTING

SETTING: COLOUR: MID

Input Signal: Two-tone White-Balance Signal

Measurement Place: On Picture

Adjustment Method:

- 1) Remember settings of the PAL White-Balance Adjustment on the Low-Light.
- 2) Select Position 2 on the selector box and confirm that the three colour boxes are visible in the lower left hand corner of the screen.
- 3) Adjust [SRY] for a reading of within 2 indicators on the **Green** scale with respect to the original results obtained from point (1) above
- 4) Adjust [SBY] for a reading of within 2 indicators on the **Blue** scale with respect to the original results obtained from point (1) above
- 5) Re-select position 1 on the switch box to confirm that the setting are within 2 on scale.

Standard:

Item [COLS] NO ADJUSTMENT

Name: SUB-COLOUR CENTRE (SECAM)

SETTING:

Input Signal:

Measurement Place:

Adjustment Method:

Standard:

Item [VPOS] NO ADJUSTMENT

{ [VP50] on REMOTE model }

Name: VERTICAL PICTURE POSITION

SETTING:

Input Signal:

Measurement Place:

Adjustment Method:

Item [HIT]

Name: VERTICAL HEIGHT ADJUSTMENT

SETTING: CONTRAST=MAX BRIGHT=CENTRE COLOUR=CENTRE

Input Signal: WG Philips Pattern (Do not use French SECAM)

Measurement Place: On Picture

Adjustment Method: Adjust the [HIT] Bus-Data until castellations just disappear from Top and Bottom of

picture

Item [HOPS]

Name: HORIZONTAL PICTURE POSITION

SETTING: CONTRAST=MAX BRIGHT=CENTRE COLOUR=CENTRE

Input Signal: WG Philips Pattern (Do not use French SECAM)

Measurement Place: On Picture

Adjustment Method: Adjust the [HOPS] Bus-Data for the best Horizontal centring

CIRCUIT CHECKS

HIGH VOLTAGE CHECK

CAUTION: There is no HIGH VOLTAGE ADJUSTMENT on this chassis. Checking should be done following the steps below.

- 1. Connect an accurate high voltage meter to the second anode of the picture tube.
- 2. Turn on the receiver. Set the BRIGHTNESS and CONTRAST controls to minimum (zero beam current).
- 3. High voltage must be measured below (B) kV.

Refer to table-1 for high voltage (B). (See SETTING & ADJUSTING DATA on page 13)

4. Vary the BRIGHTNESS control to both extremes to be sure the high voltage does not exceed the limit under any conditions.

CHAPTER 2 SPECIFIC INFORMATIONS —

SETTING & ADJUSTING DATA

【SAFETY INSTRUCTIONS 】

		21"
HIGH VOLTAGE AT ZERO BEAM:	(A)	28.3kV
MAX HIGH VOLTAGE:	(B)	31.0 kV
AC VOLTAGE	(C)	220~240V

Table-1

【 SERVICE MODE 】

ADJUSTING ITEMS AND DATA IN THE SERVICE AND DESIGN MODE:

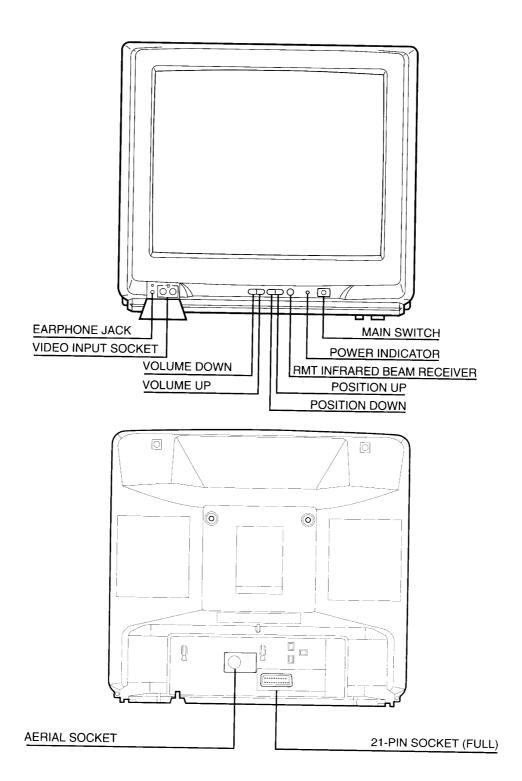
Item	Name of adjustment	Preset	Data
RCUT	R CUTOFF	20H	←
GCUT	G CUTOFF	20H	←
BCUT	B CUTOFF	20H	←
GDRV	G DRIVE	40H	←
BDRV	B DRIVE	40H	←
BRTC	SUB-BRIGHT	40H	31H
HIT	HEIGHT	20H	11H
RAGC	RF AGC	30H	←
l	i	l	

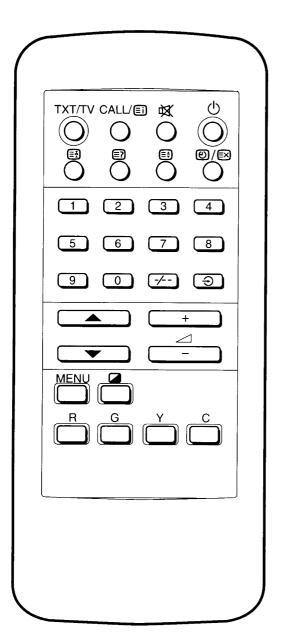
Item	Name of adjustment	Preset	Data
AFT LAGC LAFT SBY SRY	PIF VCO RF AGC (L'SYS) PIF VCO (L'SYS) SECAM OFFSET B-Y SECAM OFFSET R-Y	40H 30H 40H 08H 08H	↓ ↓ ↓ ↓ ↓ ↓

Table-2

LOCATION OF CONTROLS

(Representative: 2180TD)





KEY ASSIGNMENT

	ტ	ON/STAND-BY			
	፞፞፞፞፞፞፞፠	MUTE			
	CALL	DISPLAY CALL			
	MENU .	TUNING & OTHER MENU			
1	a	PICTURE MENU			
	1~9,0	TEN KEY			
	-/	1 or 2 place			
	€	VIDEO INPUT (EXTERNAL INPU	IT SOURCE SW.)		
	⊿	VOLUME			
	+	LEVEL PLUS (VOLUME, MENU)			
	–	LEVEL MINUS (VOLUME, MENU	I)		
	A	UP (POSI., CH., TEXT PAGE)			
•	▼	DOWN (POSI., CH., TEXT PAGE)		
		TXT/TV TEXT, MIX, TV N	MODE SW.		
		₩ HOLD			
		■ <text mode=""></text>	REVEAL / CONCEAL		
		■ <text mode=""></text>	F-T-B		
	TELE-		(FULL, TOP, BOTTOM)		
	TEXT	⊚/⊠ TIME DISPLAY (TV MODE)		
		TEXT CLEAR (T	EXT MODE)		
		🗐 INDEX, INITIAL			
	FLOF COLOUR KEY (4 key used)				
		Red/Green/Yellow/Blue			

CIRCUIT BLOCK DIAGRAM

CRT H. EAR PHONE E) (2) 7 a -W**-**₹ AUDIO OUT Q505,Q507,Q509 VIDEO OUT Q601 V. OUT H. OUT Q301 Q404 Q501 PIF CHROMA VIDEO DEF. RGB SW +B VOLTAGE AFT IDENT. CONVERTER TRANS. OSD <u>_</u> QA01 n-CON HYBRID <u></u> Q801 MEMORY BAND SW TUNER H001 QA02 Q103 QR01 VIDEO AMP. 000000000 AV (FRONT) 21PIN (FULL)

CHASSIS AND CABINET REPLACEMENT PARTS LIST

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

CAUTION: The international hazard symbols " $\underline{\wedge}$ " in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE. Do not degrade the safety of the receiver through improper servicing.

NOTICE

- The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.
- The PC board assembly with * mark is no longer available after the end of the production.

Model: 2181TB/2180TD

Capacitors CD : Ceramic Disk PF : Plastic Film EL : Electrolytic Resistors CF : Carbon Film CC : Carbon Composition MF : Metal Film OMF : Oxide Metal Film VR : Variable Resistor FR : Fusible Resistor

(All CD and PF capacitors are ±5%, 50V and all resistors, ±5%, 1/6W unless otherwise noted.)

Location No.	Part No.	Description
CAPACITO	RS	
C101	24232103	CD, 0.01µF, +80%, -20% (2180TD)
C102	24232103	CD, 0.01μF, +80%, –20%
C103	24232103	CD, 0.01µF, +80%, -20% (2180TD)
C104	24232103	CD, 0.01µF, +80%, -20%
C105	24232103	CD, 0.01µF, +80%, -20% (2180TD)
C106	24232103	CD, 0.01µF, +80%, -20%
C107	24794102	EL, 1000μF, ±20%, 16V
C108	24794470	EL, 47μ F, $\pm 20\%$, $16V(2180TD)$
C111	24538104	PF, 0.1μF
C131	24538474	PF, 0.47μF
C132	24474102	CD, 1000pF, ±10%
C133	24474102	CD, 1000pF, ±10%
C161	24794101	EL, 100μF, ±20%, 16V
C162	24473560	CD, 56pF
C163	24473560	CD, 56pF
C165	24794222	EL, 2200µF, ±20%, 16V (2180TD)
C168	24232103	CD, 0.01µF, +80%, -20%
C190	24232103	CD, 0.01µF, +80%, -20%
C193	24797229	EL, 2.2μF, ±20%, 50V
C195	24232103	CD, 0.01μ F, $+80\%$, -20%
C196	24538104	PF, 0.1μF
C197	24538104	PF, 0.1μF
C198	24538104	PF, 0.1μF
C199	24232103	CD, 0.01µF, +80%, -20%
C202	24206010	EL, 1μ F, 50V
C203	2420622 8	EL, 0.22μ F, $50V$
C204	24590222	PF, 2200pF
C205	24473100	CD, 10pF
C207	24538104	PF, 0.1μF
C208	24538104	PF, 0.1μF
C209	24538104	PF, 0.1μF
C210	24794101	EL, 100μF, ±20%, 16V
C211	24232103	CD, 0.01µF, +80%, -20%
C212	24473100	CD, 10pF
C213	24473100	CD, 10pF
C214	24473100	CD, 10pF

Location No.	Part No.	Description
C215	24797100	EL, 10μF, ±20%, 50V
C217	24797010	EL, 1μF, ±20%, 50V
C219	24538474	PF, 0.47μF
C220	24212152	CD, 1500pF, ±10%
C221	24232103	CD, 0.01µF, +80%, -20%
C222	24795471	EL, 470μF, ±20%, 25V
C223	24666470	EL, 47μF, ±20%, 16V
C224	24232103	CD, 0.01µF, +80%, -20%
C227	24669010	EL, 1μF, ±20%, 50V
C228	24590203	PF, 0.02 <i>μ</i> F
C229	24797478	EL, 0.47μF, ±20%, 50V
C230	24797478	EL, 0.47μF, ±20%, 50V
C231	24797478	EL, 0.47μF, ±20%, 50V
C232	24797478	EL, 0.47μF, ±20%, 50V
C234	24232103	CD, 0.01µF, +80%, -20%
C235	24794101	EL, 100μF, ±20%, 16V
C236	24797478	EL, 0.47μF, ±20%, 50V
C237	24212332	CD, 3300pF, ±10%
C238	24232103	CD, 0.01μF, +80%, -20%
C239	24794101	EL, 100µF, ±20%, 16V
C240	24538474	PF, 0.47μF
C241	24474101	CD, 100pF, ±10%
C242	24474221	CD, 220pF, ±10%
C243	24794101	EL, 100µF, ±20%, 16V
		(2181TB)
C243	24794100	EL, 10μF, ±20%, 16V(2180TD)
C244	24232103	CD, 0.01µF, +80%, -20%
C245	24794220	EL, 22μF, ±20%, 16V
C306	24212391	CD, 390pF, ±10%
C312	24590563	PF, 0.056μF
C313	24668101	EL, 100μF, ±20%, 35V
C314	24214391	CD, 390pF, ±10%, 500V
C315	24214221	CD, 220pF, ±10%, 500V
		(2180TD)
C317	24617912	EL, 2.2μF, ±10%, 50V
C318	24666472	EL, 4700μF, ±20%, 16V
		(2181TB)
C318	24667222	EL, 2200μF, ±20%, 25V
		(2180TD)
C323	24082049	PF, 0.047μF, 100V
C325	24668221	EL, 220μF, ±20%, 35V

Location No.	Part No.	Description
C331	24668102	EL, 1000μF, ±20%, 35V
C332	24082057	PF, 0.22μ F, $100V$
C401	24828303	PF, 0.03μF, 200V
C402	24797478	EL, 0.47μF, ±20%, 50V
C410	24082261	PF, 5600pF, 100V
C416	24214102	CD, 1000pF, ±10%, 500V
△ C440	24082342	PF, 5400pF, ±3%, 1500V
C441	24214221	CD, 220pF, ±10%, 500V (2180TD)
C442	24095754	PF, 0.43μ F, 200V
C443	24214221	CD, 220pF, ±10%, 500V (2180TD)
C444	24082335	PF, 3300pF, ±3%, 1500V
C445	24095903	PF, 0.056μ F, $\pm 10\%$, 250 V
C446	24666471	EL, 470μF, ±20%, 16V
C447	24679479	EL, 4.7μF, ±20%, 250V
C448	24640908	EL, 33μF, ±20%, 160V
C449	24667102	EL, 1000μF, ±20%, 25V
△ C463	24212152	CD, 1500pF, ±10%
C470	24666220	EL, 22μF, ±20%, 16V
C471	24538474	PF, 0.47μF
C481	24666220	EL, 22μF, ±20%, 16V
C482	24666101	EL, 100μF, ±20%, 16V
C601	24795471	EL, 470μF, ±20%, 25V
C602	24538104	PF, 0.1μF
C603	24795221	EL, 220μF, ±20%, 25V
C605	24206010	EL, 1μF, 50V
C606	24795220	
C607 C608	24590682	PF, 6800pF
C609	24797010 24794470	EL, 1μ F, $\pm 20\%$, $50V$ EL, 47μ F, $\pm 20\%$, $16V$
C610	24794470	EL, 4/μr, ±20%, 16V EL, 1μF, 50V
C611	24212102	CD, 1000pF, ±10%
C612	24212102	CD, 1000pF, ±10%
C613	24212102	CD, 1000pF, ±10%
C616	24797100	EL, 10μF, ±20%, 50V
C617	24206010	EL, 1μF, 50V
C618	24797470	EL, 47µF, ±20%, 50V
C619	24590152	PF, 1500pF (2181TB)
C619		PF, 1200pF (2180TD)
C620	24797229	EL, 2.2μF, ±20%, 50V
C623	24232103	CD, 0.01µF, +80%, -20% (2180TD)
C624	24232103	CD, 0.01μF, +80%, -20%
△ C801	24082927	PF, 0.22μF, ±20%, AC275V
△ C802	24094656	CD, 2200pF, ±20%, AC400V
△ C803	24094656	CD, 2200pF, ±20%, AC400V
C804	24794470	EL, 47μF, ±20%, 16V
C807	24092281	CD, 4700pF, ±20%, AC250V
C808	24092281	CD, 4700pF, ±20%, AC250V
C809	24086871	EL, 120μF, ±20%, 400V
C812	24092341	CD, 470pF, ±10%, 2kV
C813	24095931	PF, 2200pF, 1250V
C814	24590223	PF, 0.022μF
C815	24590182	PF, 1800pF
C816	24666470	EL, 47μF, ±20%, 16V
C817	24676220	EL, 22μF, ±20%, 100V
C820	24794470	EL, 47μF, ±20%, 16V
C821	24797010	EL, 1μF, ±20%, 50V
C828	24212101	CD, 100pF, ±10%
C829	24795471	EL, 470μF, ±20%, 25V
C830	24092337	CD, 220pF, ±10%, 2kV
C831	24086953	EL, 220μF, ±20%, 160V
C835	24797479	EL, 4.7μF, ±20%, 50V

Location No.	Part No.	Description
C836	24797100	EL, 10μF, ±20%, 50V
C837	24797100	EL, 10μF, ±20%, 50V
C838 C849	24538474 24214471	PF, 0.47μF
C901	24700100	CD, 470pF, ±10%, 500V EL, 10μF, ±20%, 250V
C902	24095931	PF, 2200pF, 1250V
C903	24794100	EL, 10µF, ±20%, 16V
C904	24794220	EL, 22μF, ±20%, 16V
C905	24212102	CD, 1000pF, ±10% (2181TB)
C905	24212103	CD, 0.01μF, ±10% (2180TD)
C931 C932	24212391 24212391	CD, 390pF, ±10%
C932	24212391	CD, 390pF, ±10% CD, 390pF, ±10%
C934	24794471	EL, 470μF, ±20%, 16V
C936	24797479	EL, 4.7μF, ±20%, 50V
CA01	24474101	CD, 100pF, ±10%
CA14	24232103	CD, 0.01µF, +80%, –20%
CA15	24794100	EL, 10μF, ±20%, 16V
CA16 CA18	24232103 24232103	CD, 0.01μF, +80%, -20%
CA 18	24232103	CD, 0.01μF, +80%, –20% EL, 47μF, ±20%, 16V
CA20	24474101	CD, 100pF, ±10%
CA21	24435470	CD, 47pF, 500V
CA22	24538104	PF, 0.1μF
CA24	24538104	PF, 0.1μF
CA37	24538104	PF, 0.1μF
CA39	24474391	CD, 390pF, ±10%
CA40 CA42	24212221 24538104	CD, 220pF, ±10% PF, 0.1µF
CA43	24538104	PF, 0.1μF
CA44	24794470	EL, 47µF, ±20%, 16V
CA45	24473560	CD, 56pF
CA46	24473560	CD, 56pF
CA47	24212103	CD, 0.01μ F, $\pm 10\%$ (2180TD)
CA48 CA49	24212103 24475222	CD, 0.01μF, ±10% (2180TD) CD, 2200pF, 16V
CA50	24475222	EL, 4.7µF, ±20%, 50V
CB01	24212472	CD, 4700pF, ±10%
CB02	24212561	CD, 560pF, ±10%
CB03	24763331	EL, 330μF, ±20%, 16V
CB04	24436181	CD, 180pF
CB05	24206010	EL, 1μF, 50V
CR01 CR02	24794100 24797010	EL, 10μF, ±20%, 16V EL, 1μF, ±20%, 50V
CR03	24797010	EL, 1μF, ±20%, 50V EL, 1μF, ±20%, 50V
CR04	24797010	EL, 1µF, ±20%, 50V
CR05	24797010	EL, 1μF, ±20%, 50V
CR06	24797010	EL, 1μF, ±20%, 50V
CR07	24797010	EL, 1μF, ±20%, 50V
CR08 CV01	24473270	CD, 27pF
CV02	24794101 24793471	EL, 100μF, ±20%, 16V EL, 470μF, ±20%, 10V
0.02	24700471	ΕΕ, 470μ1, ±2070, 100
RESISTORS		ł
R001	24366333	CF, 33k ohm(2180TD)
R002	24366102	CF, 1k ohm (2181TB)
R002	24366752	CF, 7500 ohm (2180TD)
R101	24366101	CF, 100 ohm
R103 R105	24366103 24366101	CF, 10k ohm CF, 100 ohm
R106	24366101	CF, 100 onm CF, 15k ohm
R107	24366102	
R109	24366563	CF, 56k ohm
R120	24366102	CF, 1k ohm (2180TD)

Location No.	Part No.	Description
R121	24366392	
R135	24366682	CF, 6800 ohm
R136	24366122	CF, 1200 ohm CF, 680 ohm
R137		
R138	24366360	CF, 36 ohm CF, 15k ohm(2180TD)
R171 R173	24366133	CF, 270 ohm(2180TD)
R173	24366392	CF. 3900 ohm
R175	24366471	CF, 3900 ohm CF, 470 ohm
R179	24366201	CF, 200 ohm
R180	24366331	CF, 330 ohm CF, 220 ohm (2181TB)
R181	24366221	CF, 220 ohm (2181TB)
R181		CF, 56 ohm (2180TD)
R182	24366820	
R185	24366101	CF, 100 ohm
R186	24366391	CF, 390 ohm (2181TB) CF, 1500 ohm (2180TD)
R186	24366152	CF, 1500 onm (21801D) CF, 22k ohm
R187 R188	24300223 24366222	CF. 22k ohm
R188	24366102	CF, 22k ohm CF, 1k ohm
R191	24942226	CC, 22M ohm, 1/2W
R201	24366222	CF, 2200 ohm
R204	24366751	CF, 2200 ohm CF, 750 ohm
R205	24366303	CF, 30k ohm
R206	24366271	CF, 270 ohm
R207		CF, 270 ohm
R208	24366271	CF, 270 ohm
R209	24366223	CF, 22k onm
R210	24366101	CF, 100 ohm
R211	24366101	CF, 100 ohm OMF, 220 ohm, 1/2W
R212	24352221	CF, 10k ohm
R213 R214	24366472	CF, 4700 ohm
R214	24366561	CF, 560 ohm
R216		CF, 1k ohm
R217	24366101	CF, 100 Oniii
R218	24366824	CF, 820k ohm
R219	24366151	CF, 150 ohm CF, 1k ohm
R220		
R221	24366104	CF, 100k ohm
R222		CF, 4700 ohm
R223		CF, 2200 ohm
R224		CF, 12k ohm CF, 1k ohm
R225	24366102 24366682	
R240 R241	24366123	· · · · · · · · · · · · · · · · · · ·
R241	24366152	
R316	24366102	CF, 1k ohm
R317	24366563	
R318	24366683	CF, 68k ohm
R319	24552332	OMF, 3300 ohm, 1/2W
R320	24383271	
R321	24366393	
R322	24366224	
R323	24322119	
R323	24322229	
R325	24366473	(C400TD)
R325	24366273 24382470	
R326	24339479	
R327	24339479	
R330	24321109	
R333	24366222	CF, 2200 ohm (2181TB)
R333		2 CF, 1k ohm (2180TD)

Location No.	Part No.	Description
R360	24366562	CF, 5600 ohm (2181TB)
R360	24366622	CF, 6200 ohm (2180TD)
R410	24552472	
R411	24366561	CF. 560 ohm
R412	24322129	MF, 1.2 ohm, 1W
R412	24382471	
R413	24366181	
R414	24510152	
R419	24366560	
R440	24366103	- · · · · · · · · · · · · · · · · · · ·
R442		OMF, 1k ohm, 1W
∆ R444	24338398	MF, 0.39 ohm, 1W
△R448	24338338	MF, 0.33 ohm, 1W
R470	24338568	
R471	24552101	
R472	24376393	CF, 39k ohm, 1/2W
R474	24366331	CF, 330 ohm
R475	24366102	CF, 1k ohm
R477	24366153	,
R517	24366103	CF, 10k ohm
R580	24366103	CF, 10k ohm
R601		CF, 3.3 ohm
R602		CF, 12k ohm
R603	24366182	CF, 1800 ohm
R604	24366103	CF, 10k ohm
R605	24552331	OMF, 330 ohm, 1/2W
1 11000		(2180TD)
R607	24366103	CF, 10k ohm CF, 3300 ohm
R610	24366332	CF, 3300 ohm
R614	24366562	CF, 5600 ohm (2180TD)
R615		CF, 5600 ohm
R616	24366562	CF, 5600 ohm
R618		CF, 470k ohm
R623	24366682	CF, 6800 ohm
R624	24366681	CF, 680 ohm
R625		CF, 100k ohm
R626	24366103	CF, 10k ohm
R628	24366104	CF, 100k ohm
R629	24366153	CF, 15k ohm
R630	24366392	CF, 3900 ohm
△R801	24009954	Metal-Glazed Resistor,
		2.2M ohm, 1/2W
R803	24366155	
R804	24366561	
R805	24377394	
R806	24383470	OMF, 47 ohm, 2W
R807	24383330	
R808	24531100	
R809	24366561	
R810	24366561	
R811	24322278	
R812	24366470	
R813	24366561	
R814	24366102	
R815	24366561	
R816	24366103	
R817	24366102	
R818	24366102	
R819	24321689	
R820	24366561	
R825	24366472	
R828	24366339	
R842	24366681	
R843	24366821	CF, 820 ohm
1		

Location No.	Part No.	Description
△R844	24005007	Metal-Glazed Resistor, 8.2M ohm, 1W
R848	24366392	
R860	24366122	
R865	24366681	CF, 680 ohm
R866	24366471	CF, 470 ohm
R867	24366103	• • • • • • • • • • • • • • • • • • • •
R868	24366472	
R870 R871	24383822 24366472	
R871 R872	24366472 24510479	
R878		FR, 27 ohm, 1/2W
R879	24366472	
R884		FR, 12 ohm, 1/2W
△ R890	24019340	PTC Thermistor, 18 ohm
R893	24366103	CF, 10k ohm
R901	24552272	OMF, 2700 ohm, 1/2W
R902	24552272	OMF, 2700 ohm, 1/2W
R903	24552272	OMF, 2700 ohm, 1/2W
R904	24366102	•
R905 ⚠ R920	24366229	
∆\R920 R928	24000 34 0 24266101	FR, 2 ohm, 2W CF, 100 ohm
R928 R930		CF, 100 onm CF, 680 ohm
R931		
R932	24366361	CF, 1k ohm CF, 360 ohm
R933		CF, 680 ohm
R934	24366681	CF. 680 ohm
R935	24366681	CF, 680 ohm
R936	24366471	CF, 470 ohm
R937	24366471	CF, 470 ohm
R938	24366471	
R947	24552820	
R948 R961	24366101	· · · · · · · · · · · · · · · · · · ·
R961 R962	24366390 24366390	CF, 39 ohm CF, 39 ohm
R963	24366390	
R966	24366101	
R967	24366101	CF, 100 ohm
R991	24382183	OMF, 18k ohm, 1W
R992	24382183	OMF, 18k ohm, 1W
R993	24382183	OMF, 18k ohm, 1W
RA01	24366103	CF, 10k ohm
RA02	24366472	
RA03	24366103	
RA05	24366103	CF, 10k ohm
RA06 RA07	24366103 24366472	CF, 10k ohm CF, 4700 ohm
RAU/ RA09	24366472 24019001	MF, 100k ohm, ±1%, 1/4W
RA10	24366102	CF, 1k ohm
RA11	24366182	CF, 1800 ohm
RA12	24366103	CF, 10k ohm
RA14	24366103	CF, 10k ohm
RA15	24366331	CF, 330 ohm
RA16	24366331	CF, 330 ohm
RA17	24366303	CF, 30k ohm(2180TD)
RA24	24366225	CF, 2.2M ohm
RA25	24366333	CF, 33k ohm
RA27	24366333	CF, 33k ohm
RA28	24000242	MF, 18k ohm, ±1%, 1/4W CF, 390 ohm
RA33 RA34	24366391 24000245	
RA34 RA35	24000245	
RA37		CF, 27k ohm
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Location No.	Part No.	Description
RA40	24366102	CF, 1k ohm
RA41	24366103	CF, 10k ohm
RA42	24366103	CF, 10k ohm
RA45	24366103	CF, 10k ohm
RA46	24366103	CF, 10k ohm(2180TD)
RA49	24366103	CF, 10k ohm
RA54	24366472	CF, 4700 ohm
RA56	24366471	CF, 470 ohm(2180TD)
RA57	24366103	CF, 10k ohm
RA58	24366222	CF, 2200 ohm
RA59	24366471	CF, 470 ohm(2180TD)
RA60	24366331	CF, 330 ohm
RA61	24366103	CF, 10k ohm
RA62	24366223	CF, 22k ohm
RA64	24366103	·
RA65	24366103	CF, 10k ohm
RA70	24366332	CF, 3300 ohm
RA71	24366682	CF, 6800 ohm
RA72	24366203	CF, 20k ohm
RA76	24366103	•
RA78	24366102	CF, 1k ohm
RA81	24366471	CF, 470 ohm
RA86	24366103	CF, 10k ohm
RA88	24366103	CF, 10k ohm
RA90	24366103	CF, 10k ohm
RA91	24366102	CF, 1k ohm
RA96	24366123	CF, 12k ohm
RA97	24366152	•
RB01	24366223	CF, 22k ohm
RB02	24366392	CF, 3900 ohm
RB03	24366392	CF, 3900 ohm
RB04	24366123	CF, 12k ohm
RB05	24366333	CF, 33k ohm
RB06	24366564	CF, 560k ohm
RB07	24366182	CF, 1800 ohm
RB08	24366471	CF, 470 ohm
RE01	24366391	CF, 390 ohm
RR01	24366472	CF, 4700 ohm
RR02	24366472	CF, 4700 ohm
RR03	24366103	CF, 10k ohm
RR04	24366333	CF, 33k ohm
RR05	24366103	CF, 10k ohm
RR06	24366102	CF, 1k ohm
RR16	24366331	CF, 330 ohm
RR17 RR18	24366331	CF, 330 ohm
RV01	24366331 24552101	CF, 330 ohm
RV01	24552101	OMF, 100 ohm, 1/2W
RV04	24352101	OMF, 100 ohm, 1/2W CF, 68 ohm
RV05	24366103	CF, 10k ohm
RV08	24366750	CF, 75 ohm
RV09	24366101	CF, 100 ohm
RV10	24366750	CF, 75 ohm
RV11	24366101	CF, 100 ohm
RV12	24366750	· ·
RV12 RV13	24366101	CF, 75 ohm CF, 100 ohm
RV13	24366750	CF, 75 ohm
RV 14 RV 15	24366750	CF, 75 ohm
RV15 RV26		CF, 75 onm CF, 390 ohm
RV26 RV27	24366391 24366391	CF, 390 ohm
RV27 RV28	24366391	
11720	2430033 I	Ci , 390 Oilili

Location No.	Part No.	Description	L
COILS & 1	RANSFOR	MERS	α
L101	23238558	Coil, Peaking, TRF4R47AJ	Q Q
L101	23238560	(2181TB) Coil, Peaking, TRF4R68AJ	Q
		(2180TD)	Q
L102	23221803	Coil, Choke, TLN3040D	Q
L105	23261985	Coil, RF Choke, TRF9221	Q
		(2181TB)	0
L105	23261986	Coil, RF Choke, TRF9220 (2180TD)	0
L107	23238713	Coil, Peaking, TRF4120AJ	a
L108	23238714	Coil, Peaking, TRF4100AJ	0
1 1 6 1	22262012	(2180TD) Coil, IF, TRF1077D	lä
L161	23262813 23289100	Coil, Peaking, TRF4100AF	l a
L202 L204	23289100	Coil, Peaking, TRF4100AF	ΔQ
L204 L205	23289680	Coil, Peaking, TRF4680AF	Ιa
	23103859	Coil (Ferrite Bead), TEM2011	Q
L311	23103659	Coil, Choke, TLN3142D	a
L408	23289100	Coil, Peaking, TRF4100AF	ا م
L410	23233070	Coil, Linearity, TLN2111G	م ا
L441	23103859	Coil (Ferrite Bead), TEM2011	a
L811	23280016	Coil, Peaking, TRF4100AZ	a
L821	23103859	Coil (Ferrite Bead), TEM2011	
L823			ا م
L826	23280016	Coil, Peaking, TRF4100AZ	lā
L829	23103859	Coil (Ferrite Bead), TEM2011	lä
L866	23289229	Coil, Peaking, TRF42R2AF	lä
∆ L901	23200205	Coil, Degaussing, TSB-2333AR	lä
L990	23289100	Coil, Peaking, TRF4100AF	ã
LA02	23289109	Coil, Peaking, TRF41R0AF	lä
LA03	23103859	Coil (Ferrite Bead), TEM2011	lä
LA04	23103859	Coil (Ferrite Bead), TEM2011	lä
LA05	23103859	Coil (Ferrite Bead), TEM2011	lă
<u>^</u> T401	23224983	Transformer, Horiz. Drive, TLN1039	l a
1 ∆ T461	23236510	Transformer, Flyback, TFB4123BE	
T461A	23236448	Transformer, Flyback,	0
T461B	23236448	TFB4116AR Transformer, Flyback,	0
T4040	00000110	TFB4116AR	
T461C	23236448	Transformer, Flyback, TFB4116AR	ď
∆ T801	23211858	Line Filter, TRF3139	C
∆ T803	23217240	Transformer, Converter,	
		TPW3301AR	
SEMICONI	DUCTORS	l	
Q103	23119441	IC, LA7910(2180TD)	
Q105	A6708871	Transistor, 2SC388ATM	
Q110	A6317440	Transistor, 2SC1815-Y	
Q111	A6317440	Transistor, 2SC1815-Y	
Q112	A6534053	Transistor, 2SA1015-Y(TE	
Q201	A6317440	Transistor, 2SC1815-Y	
Q210	23114530	Transistor, 2SA933S-Q	
Q212	A6317440	Transistor, 2SC1815-Y	
Q301B	23037310	Screw, BTBW3X10 SZN	
Q301	B0377890	IC, TA8403K	
Q302	A6317440	Transistor, 2SC1815-Y	
Q402	A6330069	Transistor, 2SC2482 FA-1	
	23314375	Transistor, ON4409(508D)	[
0404			
Q404 Q404B		•	
Q404 Q404B Q470	23037310 A6547250	Screw, BTBW3X10 SZN Transistor, 2SA1320	

Location No.	Part No.	Description
Q480B	23035308	Screw, BTB3X8 SZN
Q501	B0101539	IC, TB1231N(FA-1
Q601	23119668	IC, TDA2611A
Q602	23318916	IC, MC14053BCP
Q603	A6342206	Transistor, 2SC2878-A(TE
Q604	A6534053	Transistor, 2SA1015-Y(TE
Ω606	A6010040	Transistor, RN2004
Q608	A6317440	Transistor, 2SC1815-Y
Q609	A6342206	Transistor, 2SC2878-A(TE
Ω801	23314146	IC(STR), STR58041
Q802	A6534145	Transistor, 2SA1020-Y(C)
Q803	A6333346	Transistor, 2SC2655-Y(C)
Q804	A6317440	Transistor, 2SC1815-Y
Q805	A6317440	Transistor, 2SC1815-Y Transistor, 2SC1815-Y
Q806 △ Q826	A6317440 A8643108	Photo Coupler, TLP621(GR-LF
Q828	A6317440	Transistor, 2SC1815-Y
Q831	A6317440	Transistor, 2SC1815-Y
Q835	23318299	IC, L78MR05
Q836	A6534053	Transistor, 2SA1015-Y(TE
Q861	23314141	Transistor, 2SC3852
Q861B	70391356	Screw, BITTB3X10 SZN
Q870	A6333346	Transistor, 2SC2655-Y(C)
Q871	A6317440	Transistor, 2SC1815-Y
Q905	A6330069	Transistor, 2SC2482 FA-1
Q907	A6330069	Transistor, 2SC2482 FA-1
Q909	A6330069	Transistor, 2SC2482 FA-1
Q910	A6330069	Transistor, 2SC2482 FA-1
Q911	23114530	Transistor, 2SA933S-Q
QA01	23906524	IC, SAA5290ZP084
QA02	23904706	IC, NM24C02EN
QA03	A6317440	Transistor, 2SC1815-Y
QA04	A6317440	Transistor, 2SC1815-Y
QA08	A6317440	Transistor, 2SC1815-Y
QA09 QA10	A6317440 A6317440	Transistor, 2SC1815-Y Transistor, 2SC1815-Y
QA10 QA25	A6317440	Transistor, 2SC1815-Y
QB01	A6317440	Transistor, 2SC1815-Y
QB02	A6534053	
QR01	70129053	IC, BA7603
QR02	A6002040	Transistor, RN1204
QR03	A6734590	
QR05	A6317440	Transistor, 2SC1815-Y
QR07	A6002040	Transistor, RN1204
D101	23115599	Diode, 1N4148 (2180TD)
QV01	A6317440	Transistor, 2SC1815-Y
D108	23115878	Diode, Zener, μ PC574J, (L)
D109	23115599	Diode, 1N4148
D111	23115599	Diode, 1N4148
D201	A7150258	Diode, 1SS176 (2181TB)
D201	23115599	Diode, 1N4148 (2180TD) Diode, Zener, MTZJ4.7C
D202	23316667 23115599	Diode, 1N4148
D206 D208	23115599	Diode, 1N4148
D301	23118479	Diode, BYD33J
D301	23118479	Diode, BYD33J
D302 D312	23316794	Diode, SC570A
D401	23316668	Diode, Zener, MTZJ5.1A
D402	23316666	Diode, Zener, MTZJ4.7B
D403	23316688	Diode, Zener, MTZJ9.1C
D406	23118479	Diode, BYD33J
D408	23118052	Diode, RU4Z
D441	23118338	Diode, RU4AM
D442	23316254	Diode, ERC06-15

Location	Part No.	Description
No.		
D444	23118479	Diode, BYD33J
D471	A7801205	
D474	23316728	
D475	23316719	Diode, Zener, MTZJ12B
D601	23115599	Diode, 1N4148
D602 D603	23115599 23115599	Diode, 1N4148 Diode, 1N4148
D610	23115599	Diode, 1N4148
D801	23118124	Diode, LB-156 (LF-B)
D810	23316725	Diode, Zener, MTZJ15B
D811	23115599	Diode, 1N4148
D812	23118479	Diode, BYD33J
D813	23115599	Diode, 1N4148
D814	23316672	
D815	23115599	•
D816 D817	23316648 23118479	
D818	23118479	
D819	23316675	
D830	23118479	,
D832	23118451	Diode, RU-4A
D847	23115599	Diode, 1N4148
D848	23316666	
D860	23316674	,
D861	23316672	·
D870 D878	23115599	· · · ·
D991	23316689 23316554	•
D992	23316554	·
D993	23316554	Diode, 1SS146
D994	23115599	•
DA01	23316675	Diode, Zener, MTZJ6.2B
DA02	23115599	•
DA03	23115599	
DA32	23115599	Diode, 1N4148
DE50 DR04	23358504	
DR06	23115599 23115599	•
] Bridge	23113333	Diode, 1144140
MISCELLA	NEOUS	
B202	23451651	Holder, FBT
△F801	23144507	Fuse, 3.15A
F801A	23165433	Holder, Fuse
△ F803	23144875	Fuse, 0.63A
F803A	23165433	Holder, Fuse
G002 G003	24366681	CF, 680 ohm CF, 680 ohm
G003 G009	24366681 23103859	Coil (Ferrite Bead), TEM2011
	20100000	(2180TD)
G010	24366330	CF, 33 ohm (2180TD)
G011	24366101	CF, 100 ohm(2180TD)
G012	23115599	Diode, 1N4148
G013	23115599	Diode, 1N4148
G017	24366473	CF, 47k ohm
G019	24366102	CF, 1k ohm
G021 K901	23289109	Coil, Peaking, TRF41R0AF
P601	23904750 23365292	IR Receiver Jack (2180TD)
△ P801	23372012	Power Cord (2181TB)
△ P801	23372014	Power Cord (2180TD)
PH01	23365598	Connector, 21Pin
PH02	23364692	Jack, Phono(2180TD)
△ S801	23145434	Switch, Power, 2C2P
SA01	23145430	Switch, Push, 1C1P

Location No.	Part No.	Description
SA02	23145430	Switch, Push, 1C1P
SA03	23145430	Switch, Push, 1C1P
SA04	23145430	Switch, Push, 1C1P
∆ V901A	23902022	Socket, CRT, 8P (2181TB)
		The state of the s
△ V901A	23902891	Socket, CRT(2180TD)
W661	23351079	Speaker, SPK-1351, 77x77mm, 16 ohm
X501	23153979	Crystal, 4.43MHz
XA01	23153930	Crystal, 12.0MHz
Z102	23303135	Filter, 39.5M, OFWJ1951M (2181TB)
Z102	23303134	Filter, OFWJ1962M (2180TD)
Z103	23107855	Filter, TCF1031 (2180TD)
Z104	23107948	Ceramic Filter, 6.0MHz,
		SFE6.0MBF
Z105	23107926	Ceramic Video Trap, 6.0MHz, TCF1012 (2181TB)
Z105	23107927	Filter, TCF1011 (2180TD)
Z105 Z601		Filter TEM1012 (2100TD)
	23107744	Filter, TEM1012 (2180TD)
Z602	23107744	Filter, TEM1012 (2180TD)
ZP30	23144599	Protector, 125V, 0.63A
ZP80	23144539	Protector, PRF20005491, 125V, 2A
ZT01	23153736	Ceramic Resonator, TCR1025
	D ASSEMBI	
* U902A	23781772	Signal Board, PB8020A-1 (2181TB)
* U902A	23782028	Signal Board, PB8020B-1 (2180TD)
* U902B	23781773	CRT Drive Board, PB8020A-2 (2181TB)
* U902B	23782029	CRT Drive Board, PB8020B-2 (2180TD)
PICTURE	TUDE	
△ V901		Picture Tube, A51EFS83X69
TUNER		
H001	23321205	Tuner, UF813BX1(2181TB)
H001	23321279	Tuner, EGA13X2(2180TD)
ACCESSO	RIES	
K902	23120324	Remote Hand Unit, CT-9689
K902	23306084	(2181TB) Remote Hand Unit, CT-9784
ΔΤ03	23305085	(2180TD)
Y101	23563322	Owner's Manual, English,
Y101	23563315	Owner's Manual, English,
Y102	23563317	Owner's Manual, Italian, 2180TD
Y101	23563315	Battery Cover Owner's Manual, English, 2181TB Owner's Manual, English, 2180TD Owner's Manual, Italian,

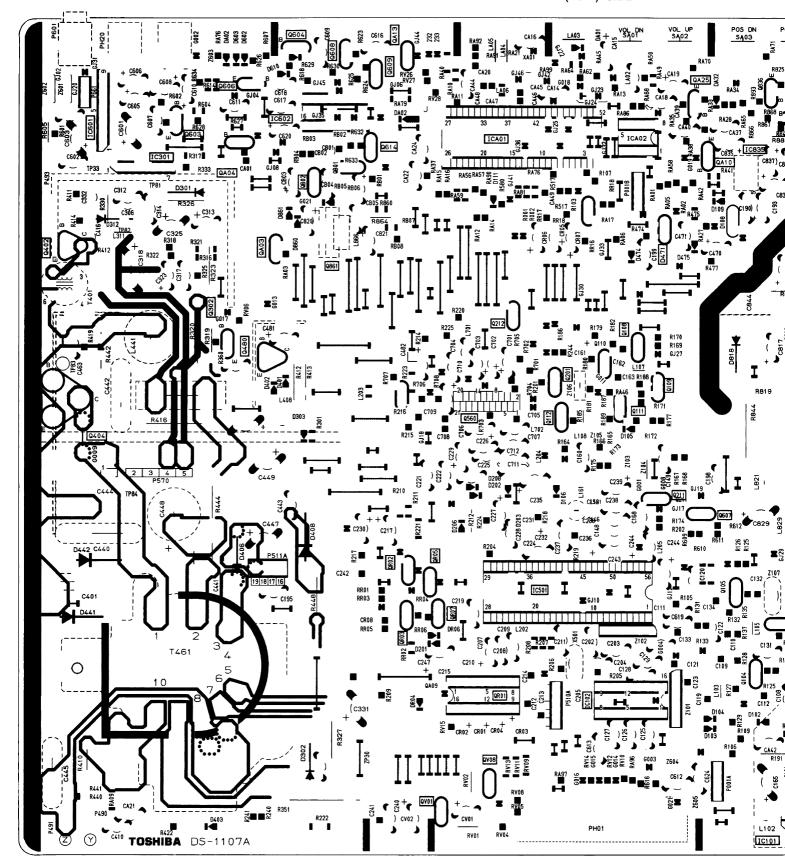
Part No.	Description
PARTS	
23410402 23410243 23421601 23443831 23425837 23426841 23560990 23550052 23030187 23525590 23525621 23935243	Front Cover (2180TD) Rail (L) Button, Power Door (2180TD) Back Cover Label, Model No. (2181TB) Label, Model No. (2180TD) Screw, CRT5x30BLUNT
	23410402 23410243 23421601 23443831 23425837 23426841 23560990 23550052 23030187 23525590 23525621

Location No.	Part No.	Description
÷		

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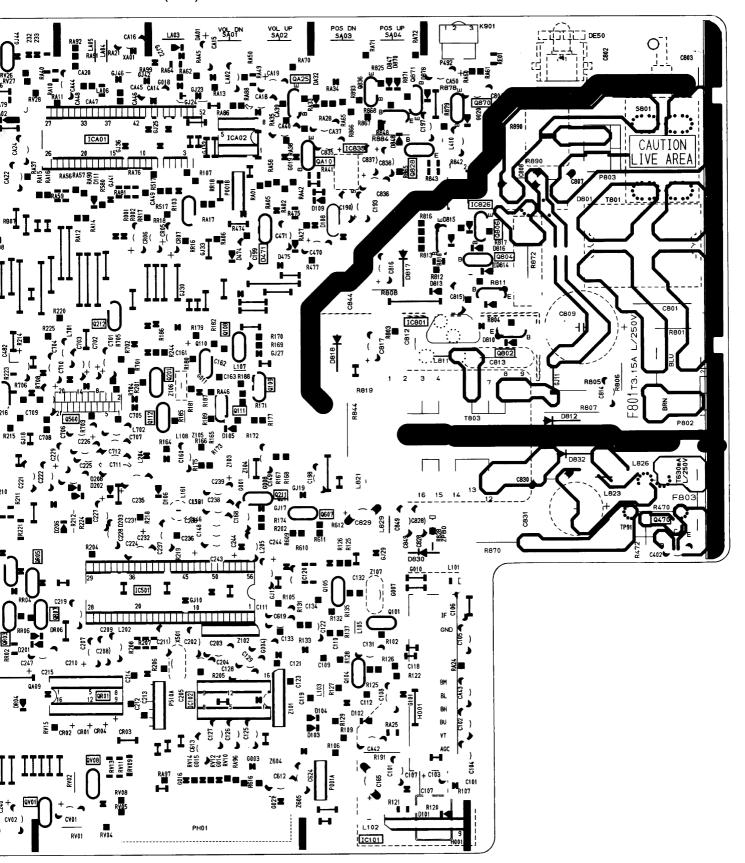
MAIN BOARD PB8020A-1

BOTTOM (FOIL) SIDE



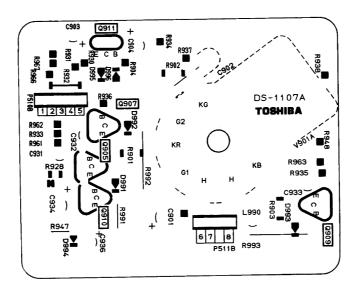
MAIN BOARD PB8020A-1

BOTTOM (FOIL) SIDE



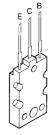
CRT/D BOARD PB8020A-2

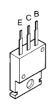
BOTTOM (FOIL) SIDE



TERMINAL VIEW OF TRANSISTORS

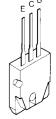
- ① 2SD2253 (old) 2SC5243
- 2 2SC3852 2SD1763A 2SC1569 2SC4544 2SA1788 2SA1306 2SA1186A
- 3 2SC752GTM 2SC2482 2SC2655 2SC4721P
- 4 2SC752 2SA562TM 2SA1015 2SC1815 2SC2878 2SC1740S 2SC2120 2SA9335
- ⑤ 2SA1788







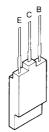


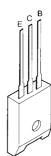


6 RN2203 RN2201 RN2004 RN1203 RN1204 RN2204 RN1205 RN1202 RN1201



- ② 2SD1554 2SD2253 2SD1556 2SC5143
- 8 ON4409





	SPECIFICATIONS (Representative : 2181TB)		
Input Power Rating:	73 watts(Approx), AC 220~240 volts, 50 Hz		
Aerial Input Inpedanse:	75 ohm unbalanced type for UHF		
Receving Channels:	PAL-I Standard:		
	UHF	channels 21 to 69	
Intermediate Frequencies:	Picture I-F carrier frequency		
	Sound I-F carrier frequency		
	Colour sub-carrier frequency		
Picture Tube	21 inches, 510 mm (measured on diagonal of v		
	90° deflection	, ,,	
Sound Output:	1.5 watts (at 10% harmonic distortion) x 1		
Speakers:	77mm round 1 pc		
Dimensions:	Height	476 mm	
	Width		
	Depth		
Mass:	19.7 kg		

Specifications are subject to change without notice.

TOSHIBA CORPORATION

1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-01, JAPAN

1 2180TD 2181RF 172 PK2701 Ė 218178 218178 ACT IN ACT OR COLOUR ACT AND ACT OF THE PERSON COLOURS ACT OF T The state of the s VALUE OF RESISTOR, CAPACITOR and INDUCTOR
Resistance in both or Long And Tobologo
2 of the order except in chambre, all capacitor values tess than 1 are expres
2 of the order except in chambre, all capacitor values tess than 1 are expres
2 of the capacitor and a capacitor order in chambre, and an All and a capacitor values and an All and the value in the first in the 11. ni ni ni Ţ Z 7 NOTES:
1. D.C. reistanos value of a principal transformer is shown graw. These are measured for separated from the citual:
2. The circuits are subject to bhange without notice.
3. \$\infty\$: \$\infty\$ is defar links. The second secon Comment of the commen 1 2 1 CAUTOR The interactional total of symbols '\hat{\textsup}' in the schemics despin and the parts list designate conponents with heap upod disturbativations between the safety of the schemation to the safety of the safety of the schemation to the safety of the schematic 1 TINDE 1 10 11 13 E P 1 2 3

m point shown to chassis ground, line voltage 220 gase reading may very 20%.

a wide band ozeillezope and a low capacity protein standard colour bar sporal.

standard colour bar sporal.

thin fatting position, Sea rever

MODEL: 2181TB / 2180TD SCHEMATIC DIAGRAM

(1/2)

030-9806

SCHEMATIC DIAGRAM

MODEL: 2181TB / 2180TD

(1/2)

1. Voltage volts, c

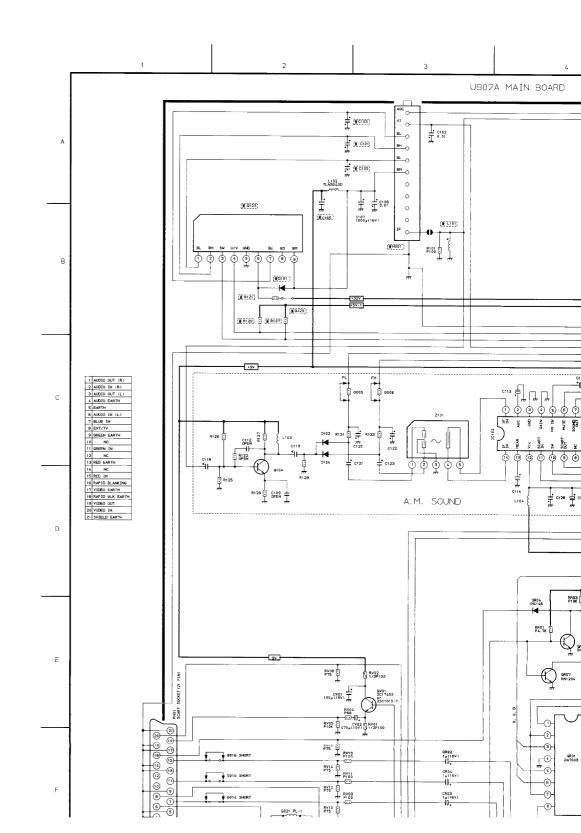
OBSERV

2. All way

3. Wavefo 4. Make s **BRIGH** picture

030 - 9806

CAUTION: The international hazard symbols "\(\underline{\Lambda} \)" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 3. Do not degrade the safety of the receiver through improper servicing.



OBSERVATION OF VOLTAGES AND WAVEFORMS NOTES: 1. Voltages read with VTVM from point shown to chassis ground, line voltage 220 1. D.C. resistance value of a volts, colour bar signal. Voltages reading may vary ±20%. gram. These are measured 2. All waveforms are taken using a wide band oscilloscope and a low capacity probe. 2. The circuits are subject to 3. Waveforms are taken using a standard colour bar signal. 3. 👄 : Solder links. 4. Make sure that CONTRAST and COLOUR controls are in mid position and BRIGHTNESS control is almost in maximum position. Set other controls for best U902A MAIN BOARD PB8020-2 R109 C132 B1000 R136 P1.2K 車 部級 R634 OPEN 32v Q508 25C17405 or 25C1815 - Y R623 P3.3K X6147 10, C617 10,(16V) 777 R628 P100K L205 68₄ **¥**8693 ¥8632 GJ43 OPEN R202 OPEN ¥ 6J12 -3 #® # CRO116V 12 6 -00ě,

022 188 resistance value of a principal transformer is shown in this schematic dia-These are measured for separated from the circuit.

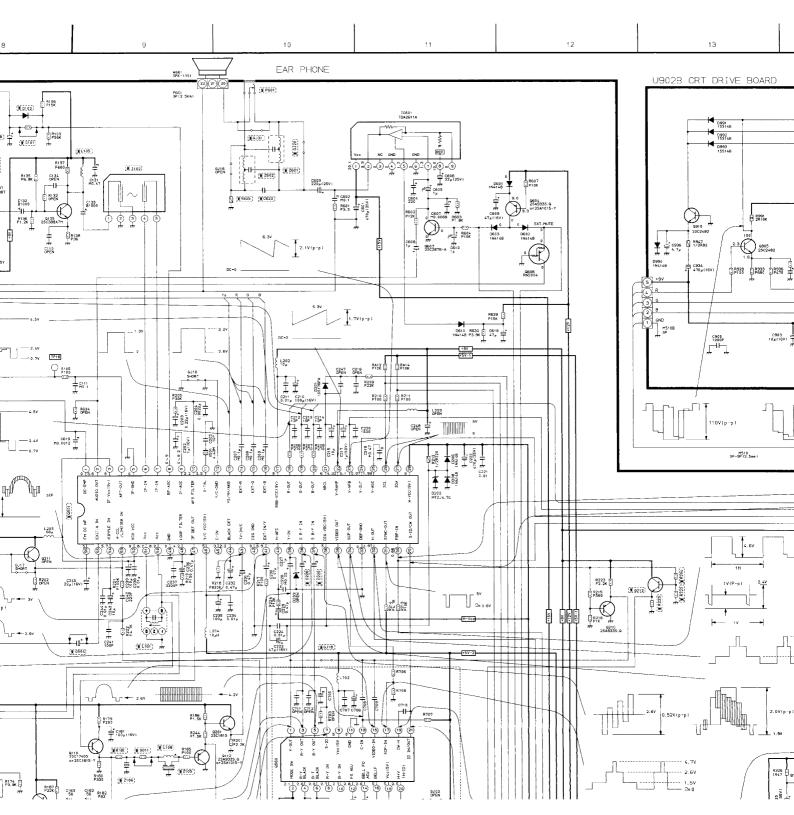
ircuits are subject to change without notice.

: Solder links.

EXPRESSION

VALUE OF RESISTOR, CAPACITOR and INDUCT

- 1. Resistance is shown in ohm, k=1,000, M=1,000,000
- 2. Unless other wise noted in schematic, all capacitor
- sed in μF and the values more than 1 in pF. 3. Unless otherwise noted in schematic, all inductor v sed in μH , and the values less than 1 in H.



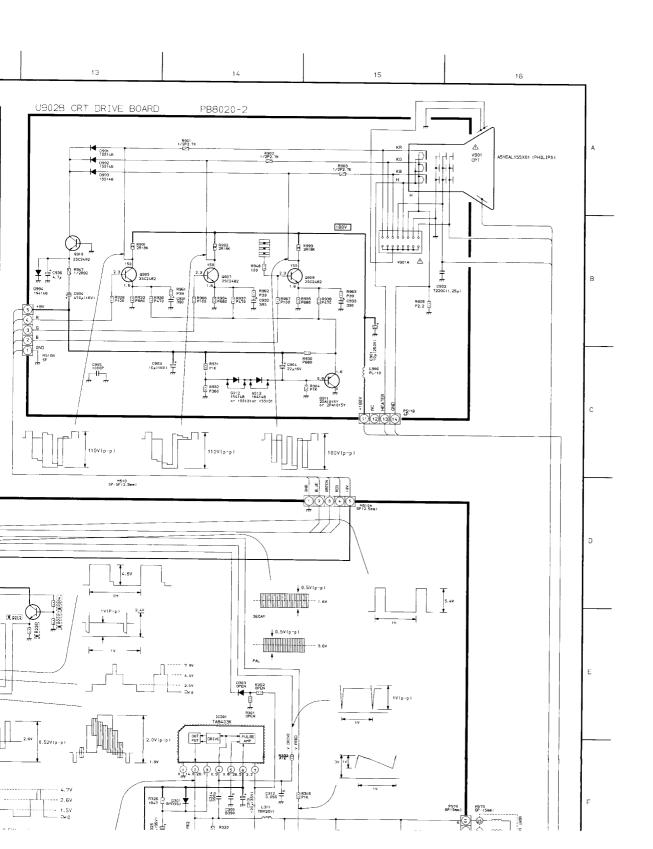
TOR, CAPACITOR and INDUCTOR

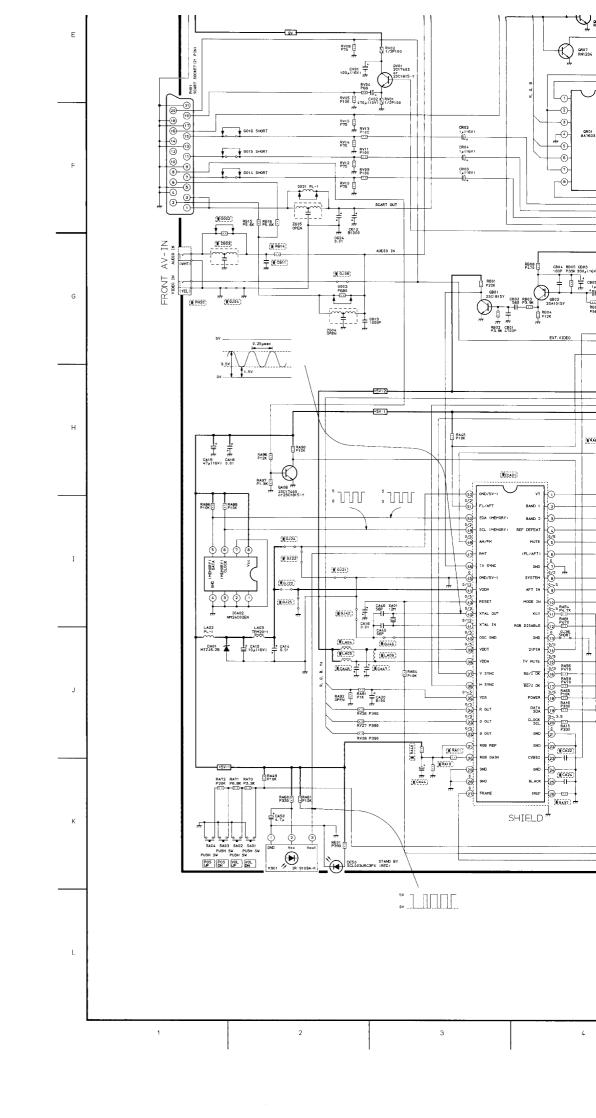
vn in ohm, k=1,000, M=1,000,000

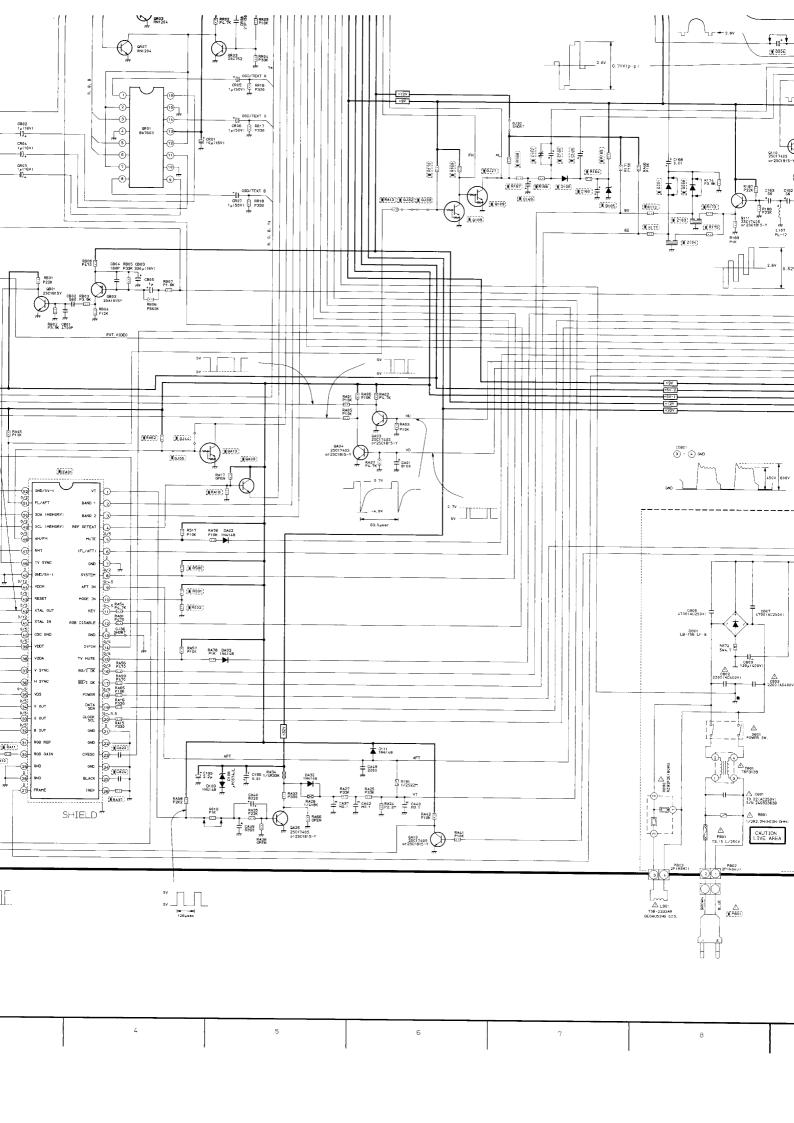
noted in schematic, all capacitor values less than 1 are expres-

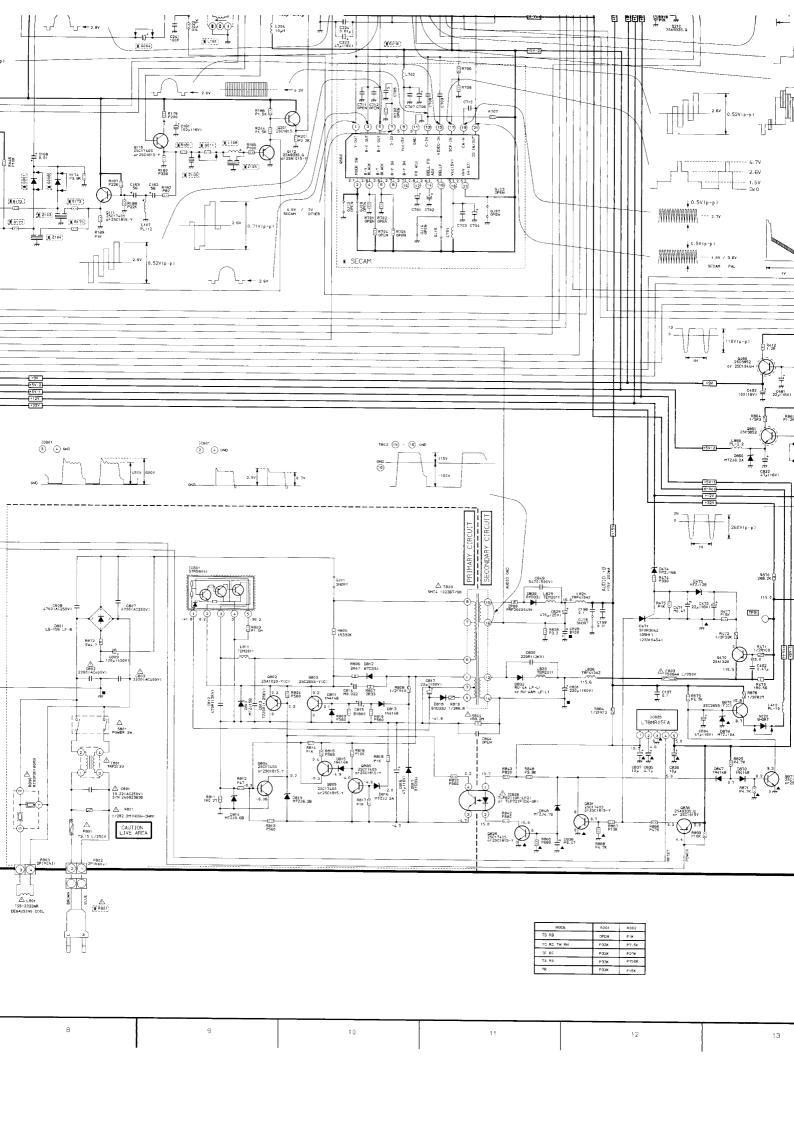
values more than 1 in pF. noted in schematic, all inductor values more than 1 are expres-

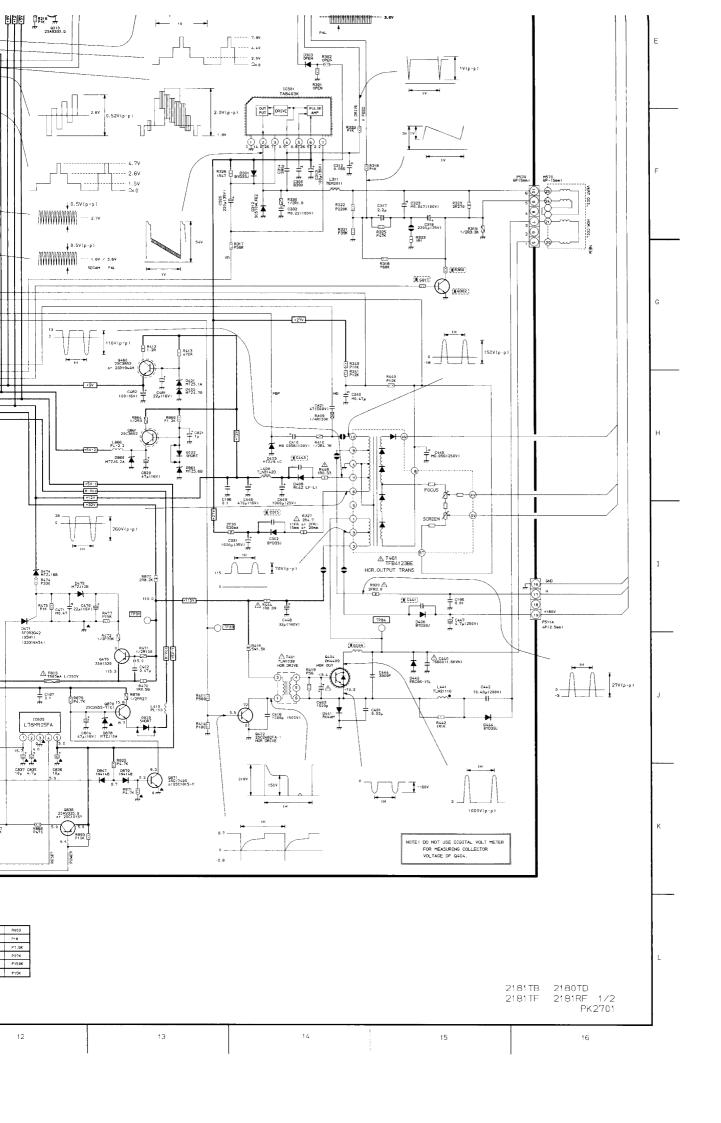
e values less than 1 in H.











2/2 PK2702 21817B 21817F VALUE OF RESISTOR, CAPACITOR and INDUCTOR

1. Relatives shown in only. 1-1000, for JOSODO, 20, 1-1000, | Page | | The control of the | Text | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | Total | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,00 | Column | C 200.1301 200 | March | Marc | Section | Sect | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 180.00 | 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981 8131 8138 8138 8133 8133 8133 9138 resistance value of a principal transformer is shown in this schematic dis-it. These are measured for spoagled from the circuit. Folder links.

- Soder links. H151 H150 THIS IN THE STATE OF THE STATE 1 or own of the control of the contr | March | Marc KOC 18:10-NI LBOHS | Commercia | Comm 2.72 1.83 OSSERVATION OF VOTALGES AND WATERCHINE SET OF VOLTAGES AND WATERCHINE VOLTAGES AND WATE 9 9291
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9 (5/5)CAUTOR: The international lucand symbole '\overline{A}', in the achemist's despan and the pasts list designate components which have appeal duratisetistics are related for subject souther to subject souther to the pasts and the subject of relationments is to be obtained with objects. Better all the pasts list. The mounting position of inspiratements is to be obtained with objects, better entables up of these convenients, and entable the PRODUCT SAFEY NOTICE on page. So not degrade the safety of the receiver through propose service; MODEL: 2181TB / 2180TD SCHEMATIC DIAGRAM 030 - 9806

W U

SCHEMATIC DIAGRAM

MODEL: 2181TB / 2180TD (2/2)

1. V

4. N

2. A 3. V

030 - 9806

CAUTION: The international hazard symbols "\(\bigcape \)" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 3. Do not degrade the safety of the receiver through improper servicing.

					1													;	2												3											
A		COORDINATES	CA22 4J	CA24 4K	CA44 3K	CA47 2J				C105 2A				C115 4C	C118 1D	C119 2C	C120 3C	C121 2C	C122 3C	C123 3C	C128 4D	C129 4D	C146 7F	C148 7F	C149 7F	C152 7F	C160 7F	C165 2A	C225 4C	C226 4C	C315 14I	C441 15I	C443 14H	C611 2G		C701 10F		C703 11F	C704 11F	C705 10E	C706 10E	C707 10E
		-	-	81RF	81RF	81RF	-	+	-	+-	-	+-		+	-			1818F		81RF					-	-	81RF) 81RF	-	-	_	+-	_	81RF (-	4	+	+	81RF	81RF	\rightarrow
В		-	-	NONE	_	39P	39P	0.01	0.01 m	-	-	ļ.,	⊢	-	1000P	1000P	0.014	+-	0.014	1000P	0.01	474 (16V)	98	0.01	0.01	2R7-100	0.01	2200 µ (16V	0.1 µ (50V)	0.1 (50V)	220P	220P	220P	1000P	0.01	10µ(50V)	1 u (50V)	0.014(50V	100 µ (16V)	0.033µ(50V)	100µ(16V)	0.01 µ (50V)
			81TF	81TF	81 TF	/) 81TF	_		81TF	81TF	81TF	81TF	81TF	817	81TF	81TF	81TF	81TF	81TF	81TF	81TF	81TF	81TF	81 TF	81TF	81TF	81TF	_	81TF	81 TF	81TF	81 TF	81 TE	81TF	81 TE	81 TF	81TF		81TF	V)817F	!!) 81TF
С		2180 IF	_	-		$0.01_{\mu}(50V)$	├	ļ_	_	↓_	↓_	-		_	1000P	1000P	0.01	↓_	0.01	1000P	0.01	47µ(16V)	86	0.01	0.01	2R7-100	0.01	2200µ(16V	$0.1\mu(50V)$	$0.1\mu(50V)$	220P	220P	220P	1000P	0.01	10µ(50V)	1 (50V)	0.01 µ (50V)	100 µ (16V)	0.033 µ (50V)	100 μ (16V)	0.01 H (50V
			80RF	80RF	BORF	80RF	BORF	BORF	BORF	80RF	BORF	BORF	BORF	BORF	BORF	BORF	BORF	BORF	BORF	BORF	BORF	80RF	BORF	80RF	BORF	BORF	BORF	V) 80RF		BORF	BORF	BORF	BORF	80RF	BORF	BORF	BORF	_	BORF	1-		, 80RF
	L	+	4	\rightarrow	\rightarrow	_	39P	0.01	η 10.0	L	_	10 µ (16V		10 µ (16V)	_	1000F	0.01	-	0.01μ	1000P	0.01	47µ(16V)		0.01 μ	0.01	2R7-100	0.01	2200µ(16V	$0.1\mu(50V)$	$0.1\mu(50V)$	220P	220P	220P	NON	NONE	104 (50V)	1 (50V)	0.01 µ (50V	100 µ (16V	0.033µ(50V	100µ(16V)	0.01 µ (50V)
D		1	80 1	80TF) 80TF) 80TF	80TF	80TF	80TF	80TF	80TF	80TF	80TF	80TF	80TF	80TF	80TF	80TF	80TF	80TF	80TF	80TF	80TF	80TF	80TF	80TF	-1	80TF	80TF	80TF	80TF	80TF	BOTE	80TF	80TF	80TF	80TF			80 TF	80TF
	F + 0 + 0	Z1811F													1000P	1000P	μ10.0	1000P			η 10.0	47 (16V)				2R7-100			- 1							10µ(50V)	1			$0.033\mu(50V)$	100 µ (16V)	0.01 µ (50V
			212	81KD	8180	81RD	81RD	81RD	81RD	81RD	81RD	81RD	81RD	81RD	81RD	81RD	81RD	81RD	81RD	81RD	81RD	8180	81RD	81RD	81RD	81RD	- 1	1 81RD	81RD	81RD	81RD	81RD	81RD	81RD	81RD	81RD	81RD	81RD	81RD	81RD	81RD	8180
E	00000	ONON PACIN	-	\rightarrow		335	395	0.01	0.01	0.01	47µ(16V)	NON	NON	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NON III	NONE	NONE	NON	NONE		2200 µ (16V	NON	NONE BOOKE	220P	220P	220P	1000P	0.01μ	Non	NONE	NONE	NONE	NONE	NONE	NONF
		GF 70		8110	-	_		81TD	81TD	81TD	81 TD	81TD	81TD	81TD	81TD	81TD	81TD	81TD	81TD	81TD	81TD	81TD	81TD	8170	81TD	8,10	8110	8110	8110	8,10	8110	8110	8170	8170	81TD	8170	81TD	81TD	81TD	8110	81TD	0410
F	OTO 01C	V C	VOC 18 - 0	+	+	+		D 0.01 µ	-		\dashv		D NONE	\rightarrow		NONEI D		NONE		DONE D		_	NONE	NON	NONE	NON	NONE	2200µ(16V)	NON.	NON	220F	220P	220P	1000P	0.01	NONE	NONE	NONE	NONE	NONE	NONE!	

(2/2)

tical to

ical on page **OBSERVATION OF VOLTAGES AND WAVEFORMS**

- 1. Voltages read with VTVM from point shown to chassis ground, line voltage 220 volts, colour bar signal. Voltages reading may vary $\pm 20\%$.
- 2. All waveforms are taken using a wide band oscilloscope and a low capacity probe.
- 3. Waveforms are taken using a standard colour bar signal.
- Make sure that CONTRAST and COLOUR controls are in mid position and BRIGHTNESS control is almost in maximum position. Set other controls for best picture.

NOTES:

- 1. D.C. resistance value gram. These are mea
- 2. The circuits are subje
- 3. : Solder links.

8410 8410 8410 8410 8410 8410 8410 8410	220F	8180			4				-		
		מאומ	220F	80 IT	220F	BORF FORE	220F	817 7 7 7	220F	918 18 19	C441 151
	000P	818	NONE	80TF		BORF	1000P	817	-	817	
_	0.01	81RD	NON	80TF		80RF	0.01	81TF		81RF	C623 10A
_		81RD	10 (500)	80TF	10µ(50V)	80RF	10 (50V)	81TF	10µ(50V)	81RF	
		91KC	0.01(50V)	30 H	0.01(50V)	THOS S	0.01,(50V)	20 g	1 (500)	# 10 구 13	_
	NONE	2	100µ(16V)	1 L	100 m (16V)	BORF	1004(16V)	917	100 µ (16V)	9 18	C704
	NONE	8	0.033µ(50V	SOTE THOS	0.033µ(50V)	BORF	0.033µ(50V	81TF	0.033µ(50V	181RF	C705
i i		i	100µ(16V)	10TF	100 µ (16V)	BORF	100µ(16V)	81TF	100 / (16V)	81RF	C706 10E
	NONE	RD	$0.01\mu(50V)$	80TF	0.01 4 (50V)	BORF	$0.01\mu(50V)$	81TF	0.01 (50V)	81RF	C707
	JNO.	2	100P	801F	100P	80RF	100P	81TF	100F	81RF	
	NONE	84RD	14 (50V)	80TF	1 (50V)	BORF	14 (50V)	81TF	1,4 (50V)	81RF	
- 1	10NF N/1/20	8120	0.01 pt (50V)		10.01 4 (50V)	80RF	10.01 4 (50V)	917	0.01 (50V)	84 18 18 18 18 18 18 18 18 18 18 18 18 18	
- 1	NONE	8 2	1N4148	80TF	1N4148	BORF	1N4148	0 60	1N4148	2 0 7 7	
	NO.	8170	155110		155110	-	155110	817	155110	9 1 1 1 1 1	
1 1	IONE	81RD	155110		155110	-	155110	8111	155110	81RH	
	ONE	81RD	MTZ2-7B		MTZ2-7B	BORF	MTZ2-7B	81TF	MTZ2-7B	81RF	
	E CONTRACTOR OF THE CONTRACTOR	8180	155110	80TF	155110	80RF	155110	8111	155110	81RF	D106 7F
	SHORT	2 d	NON FI			30KT	NON H	± 6 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NONE MICHAEL M	2 7 7 7 7	5002 /C
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81TD N	NONE	81RD	SHORT	80TF	SHORT	BORF	SHORT	2 60 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SHORT	81RF	GJ06 7F
1	SHORT	81RD	NONE	80TF	NONE	80RF	SHORT	8117	SHORT	81RF	
-	NONE	81RD	NONE	80TF	SHORT	80RF	NON E	81TF	SHORT	81RF	
-	NONE	8180	VIOX	80TF	NON NOW	80RF	SHOR	84 11 14	SHORT	177. 177. 17.	6.15 11F
		0 6	SHORT	00 α Γ Τ	SHORT	2007 1700 1700 1700 1700 1700 1700 1700		ρά	HVON HVON	2 g	G120 10E
+-		81RD	SHORT	BOTE	Non	BORE	SHORT	2 00	100	918	6121 21
817D N		81RD	SHORT	80TF	NONE	80RF	SHORT	8111	NON	81RF	6J22 2I
\vdash		81RD	SHORT	80TF	NONE	80RF	SHORT	81TF	NONE	81RF	6323 21
			NONE:	80TF	h- 1	80RF	NON I	81TF	SHORT	81RF	GJ24 2I
	SHOKI	_	NON P	80TF	SHORT	80RF			SHORT	81RF	6.125.21
		ρ ά	SHORT	T 100		1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	THORY L	10 g	SHORI	7 7	5 120 20
		0 α Γα Γα	SHORT	L Ω α		000KT	L HOUND		- ADING	7 6	GJ29 ZB
		+	SHORT	8011	SHORT	BORT	STORI	ο α π	SHORT	ρ Ε α Ε	G132 6F
Z		+-	SHORT	BOTF	SHORT	BORF	SHORT		SHORT	81RF	GJ33 6F
S	<u></u>		NONE	80TF	SHORT	80RF	NONE	81TF	SHORT	81RF	6142 21
Z	NONE	O	NONE	80TF	SHORT	BORF	NONE	81TF	SHORT		GJ44 4H
Z	NONE	81RD	SHORT	80TF	NON	BORF	SHORT	81 TF	NONE		674631
S		_	NONE	80TF		BORF	NONE	81	NONE		6J47 6D
2 ā		-	0	H 08	155110	80RF	155110	81 11 12 13 14 14 15 16 16 16 16 16 16 16 16 16 16 16 16 16	155110		G001 8F
1. 0	TOBUL		NOINE 0 0 (167)	-	NONE O O	T L	7 2 7 7 6 V	H 1			G002 ZF
りŹ		2120	Z.Zµ(15V)	200 A	Z.Zµ(16V)	THO O	Z.Zµ(15V)	7 L L	Z. Zµ(16V)	φ 6	G004 9E
Ž			P100	-	P100	BORF	P100	81TF		1-	G006 3C
Ś		_	155110	80TF	155110	BORF	155110	81.TF		_	G008 8F
F	TEM2011	81RD	TEM2011	80TF	TEM2011	BORF	2011 80RF TEM2011	91 TF	TEM2011	111	6009 14J
a			P68	H.	P68	BORF	P68	SITE	P68	Т	G010 8A
۵			P100	_	P100	BORF	P100	31TF	P100		G011 9F
Z			P47K	-	NONE	BORF	P47K	31 TF	NONE	-	~
		_	P12K		1	П		1			G101 8A
	- 1	-	TN-EGA13 VS	щ	S > 1	VS80RF	_	/581TF	IN-EGA13 VS	81RF	H001 38
3 2	PB3C055BBP7192	_	SAA52902P/084 STVB005	300 H	3P/192	BORF	SAA52902P / 084	1 F	P83C055BBP/192	92 81RF	ICA013H
? Ž	i	200	JIVOZZO TEMONAN	30 TT	STV6ZZ3	T L	J I VGZZO	7 F			1010240
Ž		0 a	TEM2011	90 P		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	TEM2011	ρ α Τ Τ		ρ α Τ μ	A05 2
	330AJ	+-	NON	+	TRF4330AJ	BORF	NON	-			LA06 3J
	768AJ	-	REBAJ	80TF	γY	BORF	TRF 4R68AJ	+	TRF4R68AJ		L101 3B
_		81RD	1019	80TF		BORF	TRF1019	-		81RF	L103 2C
		8180		80TF	L A	BORF	AF.		TRF43R3AF	81RF	L104 4D
_		-i-	TREZROGA I	1 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- VBC	BORF	TREZBOAL	7 7		81RF	1105 9A
	TRF1239AV (+-	N N N N N N N N N N N N N N N N N N N	Tu.		BORF		8111	2	8,5	
ž		1. 1.	OAF	80TF		BORF	1	-	TRF4100AF	81RF	L701
Ž	NONE 81RD		TRF4100AF	-+-	100AF		ų,	8111	- 1	_	L702 10E
1. U	GNU JACK Z			1 08 1 1 08 1 1 1 08		BORF	FAB LACK 3 Smm	81 TE	FAB ACK 3 Smm	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	PROT 10A
ăă	WER CORD :		R CORD	υ α ΠΤ Ο α	SCORD	_	G.Smm	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	POWER CORD	_	1000 1000 1000

NOTES:

- 1. D.C. resistance value of a principal transformer is shown in this schematic diagram. These are measured for separated from the circuit.
- 2. The circuits are subject to change without notice.
- 3. 👄 : Solder links.

EXPRESSION

VALUE OF RESISTOR, CAPACITOR

- 1. Resistance is shown in ohm, k=1,000,
- 2. Unless other wise noted in schematic, sed in μ F and the values more than 1 i
- 3. Unless otherwise noted in schematic, sed in μ H, and the values less than 1 in

		12	13
LANG 23 LANG 33 L103 2C L103 2C L104 4D L108 9F L108 9F L701 11F L702 10E PH20 106 PB01 10A	20103 20103	RA10 3K RA11 3J RA11 3J RA11 3J RA11 3J RA11 3J RA11 3J RA12 3J RA20 3J RA40 3J RA40 3J RA40 3J RA40 3J RA50 2 LH RA50 1 SE RA50 1 SE RA50 1 SE	R605 10A R606 7C R606 7C R614 2C R633 7D R633 7D R706 11E R706 11E
8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8			8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
NOWE TRF4330AJ TRF4330AJ TRF1019 TRF4373AF TRF3220 TRF4100AF TRF410AF TRF41	2501815-Y NONE LA7910 SSC388ATM RN1206 NONE NONE TB1238N TA1275AZ NONE RN1206	NONE NONE NONE NONE NONE NONE NONE NONE	P220 P220 NONE P5.6K P9.1K P9.1K P6.2K P6.2K P6.2K P6.2K P6.1K P9.1K
1 1 2 3 4 5 6 6 7 6 7 6 6 7 8 9 9 9 10 10 10 10 10 10 11 12 12 12 13 14 15 16 17 18 18 19 10 10 10 10 11 12			H
TEM2011 NONE TRF4R68AJ TRF4R68AJ TRF43R3AF TRF9828AJ NEW TRF4100AF TRF4100AF PHOW ACK 3.5mm PHOWER CORE	25C1815-Y RN1203 LA7910 25C388ATM RN1206 ZSC1815-Y 25C1815-Y 181238N TA1275AZ RN1203		330 S30 S30
800RF 800RF 800RF 800RF 800RF 800RF 800RF 800RF 800RF	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	1	
NOWE TRF4330 TRF4868 TRF4380 TRF4380 TRF4820 NEW NEW TRF4100 NONE NONE	25C181 NONE NONE TA1208 RN1208 RN1208 NONE TA1275 NONE RN1203 RN1203 RN1203 RN1203		9453M
8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	880177777777777777777777777777777777777		8807F 8007F 8007F 8007F 8007F 8007F
TEM2011 NONE TRF.1019 TRF.28294) NEW TRF.400AF TRF.4100AF TRF.4100AF NONE NONE NONE POWER CORD	2SCI 815-Y RN1203 LA7910 2SC388ATM RN1206 RN1206 RN1208 T81238N T81238N TA1275AZ RN1203 RN1203	P1K P10K P10K P12K P12K P12K P12K P12K P12K P12K P12	NONE P220 P27X NONE P10X P10X P10X P6.2X P6.2X P9.1X P9.1X CFWL9453M
8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
 	NONE NONE TO N	NONE NONE NONE NONE NONE NONE NONE NONE	0000
20 20 39AV 39AV C 3.5mm CORD			330

XPRESSION

ALUE OF RESISTOR, CAPACITOR and INDUCTOR

Resistance is shown in ohm, k=1,000, M=1,000,000 Unless other wise noted in schematic, all capacitor values less than 1 are expressed in μF and the values more than 1 in pF. Unless otherwise noted in schematic, all inductor values more than 1 are expressed in μH , and the values less than 1 in H.

13 16 81RF R175 8F 81RF R204 13E 81RF R205 13E 81RF R225 13E 81RF R605 10A 81RF R609 6D 81RF R708 11E 81TF P470
81TF P100
81TF P100
81TF P56
81TF NONE
81TF NONE
81TF NONE
81TF P20
81TF P20
81TF P20
81TF P040
81TF P6.2K
81TF P6.2K
81TF P6.1K
81TF P6.1K 80RF P470
80RF P100
80RF P750
80RF P750
80RF P10K
80RF P10K
80RF P77K
80RF P27K
80RF P27K
80RF P27K
80RF P5.6K
80RF P5.6K
80RF P5.7K
80RF P5.1K
80RF P9.1K
80RF P9.1K
80RF P9.1K
80RF P6.2K
80RF P6.2K
80RF P77K
80RF P6.2K
80RF P6.2K
80RF P6.2K
80RF P77K
80RF P6.2K
80RF P6.2K
80RF P6.2K
80RF P6.1K
80RF P6.1K 801F P.770
801F P.770
801F P.66
801F NONE
801F P.08
801F P.08
801F P.08
801F P.18
801F P.18
801F P.18
801F P.18
801F P.18
801F P.28
801F P.18
801F P.18 81RD P 770
81RD P 770
81RD P 770
81RD P 750
81RD P 10K
81RD P 27K
81RD P 10K
81RD P 27K
81RD P 27K
81RD P 10K
81RD P 10K 817D NONE
817D NONE 000 NONE
000 PT5
000 PT7
000 P

2

3	CSIS	NON	8018		BORB N	OINE B	N N	JNE 81	RB Z	3 AUZ	30TD	720P 80F	77. O	0P 81	TD 2.	40;
	C441		801B		BORB N				RB 2	ZOP	90TD	220P 80F	25 25 26 27	0P 81	10	10P
	0611	NONE	80 TB	J WON	80RB 1	000P 81	101	000P 81	2 2		80TD	NONE 80RD	36	000	1 F	00P
	C623	NONE	80TB		BORB 0	.01	TB 0.	01μ 81	ž g	SNE BNC	80TD	NONE 80F	₹D. 0	01 1 81	TD 0.	01 µ
	C701	NON	80TB		BORB N	ONE 81	\vdash	ONE 81	ž 82	SNE SNE	80 TD	NONE 80RD	-		ž	EN EN
	C702	NON .	80TB		80RB N	ONE 81	2 E	NE 81	2 8		80TD	NONE 80RD	\dashv		ž P	
	C/03		80TB		80RB	ONE SPIE	m c		2 2		\rightarrow		-		-	U L
	C 704	NOS NOS	8018		2 2 2 S		nlo		2 2		8010				+	NON I
	C706		801B		00000 00000		n a				1	NONE BOBD				
	C707	NONE	80TB		80RB N	ONE 811		NE O	+	NONE		NONE 80RD	NON C		+	J.O.N.
	C708	NONE	80TB		BORB N	ONE 81	m	NONE 81	-		+		-		+-	NONE
4	C709	NON	80TB		80RB N	ONE 81	m	00	\vdash		-		\vdash	81		NONE
_	C710	NON	80TB		BORB N	ONE 81T	-		-		-		DONE OF		TD NONE	WZ.
	D101	NON E	80TB		BORB Z	ONE 81				48	80TD	48	-	87	\rightarrow	1N4148
	D102		80TB		80RB	ONE 81	2		\rightarrow		_					NONE NONE
	50,00		80 B		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		-	NONE NONE				ш\ц		# F		
	7010		000 IB		2000		+	NONE	_					0 0		
	2100		000						_			NONE 80RD		œ å	+	
	63.02	SHORT	80 TB		BORB SI	HORT 81	+	L			+	TX.	SIS	-		
	60.04	NON	80TB		BORB S	HORT 81	TB St	_	81RB N		╄-	NONE 80RD	3D SHOR	18	15 12 13 14 15 16 16 16 16 16 16 16 16 16 16 16 16 16	IORT
	6,05	JUON I	80TB		BORB N	ONE 81	JB NC		\perp	NONE		w	-	18	Z Q	NONE
	9009	NONE	80TB		BORB N	ONE 81	TB NC		81RB N	SNE BNE	—		SD NONE		Z OL	NONE
E,	6,108		80TB		BORB SI	HORT 81	는 SE	-			010		-	DRT 81	하	SHORT
5	7 2 2		80 8		2 2 9200 9200			NON THE	2 2	NON INCIDENT		NON BORD				
	6118	NON Factor	801B		2 07 08 07 08 07 08 07 08 08 08 08 08 08 08 08 08 08 08 08 08		2 d	_	_				_		Z 7	NONE
	03.20	SHORT	a Fox		SORB SORB			_		- 122 - 122 - 122 - 123 - 123	200	- H		2 0 0	+-	LIZON DE LIZON
	6321	SHORT	80 TB		BORB SE	HORT 81				JART TAPE	07 OT 08	NONE NONE NONE NONE NONE NONE NONE NONE	SHOR	-	+	
	6322	SHORT	8018		BORB St	HORT 81			RB 83	JOR T	30TD	ONE 808	+-			
	6,123	SHORT	80TB		S	HORT 81	18 18 18	NONE	RB Sz	JORT TOP	30TD	JONE 80R	-			
	6324	NONE	80TB		Z		TB SF	-	Z Z Z Z	NC NC	30TD	RT m	+		+	ORT
	6725	NON	80TB		BORB N	ONE B1	TB SH	10RT 81	RB NC	SNE ENC	30TD 3	SHORT 80R	SD NO	-18	TS ST	ORT
	6J27	NONE	80TB		BORB N	ONE 81	TB NO	NE 81	RB NC	ONE B	30TD I	JONE 80RD	SD NONE		DN CL	빌
	6759	<u> </u>	80TB		BORB N	ONE 81	N BI	NONE 81	B1RB St	-CRT	80TD 3	SHORT 80R	_	<u>-</u>	라 라	ORT
	6331	- X-12X-1	80TB		BORB N	ONE 81	2 2	180	5 2 8 8		30 TD	~		91	+	¥ ;
6	6332		8018		NORB NORB		2 2		ž ž		10	20 0		io d	+-	
	6172		00 LB		N R R R R			SHORT 81	α a a a a a a a a a a a a a a a a a a a		00 00 00 00 00 00 00 00 00 00 00 00 00	SHORT	_	ōà		ORT
	6744	NONE	80TB	NONE NO.	BORB	ONE 81	2 2	-	81RB N		+-	. w	-	90	TON ON	
	6,746	SHORT	80TB	NONE	BORB St	JORT 81	N 81	NE 81	15 15 15 15 15 15 15 15 15 15 15 15 15 1	JORT 8			-	XT 81	+	U
	6347	SHORT	80TB	SHORT	BORB St	HORT 81	TB SH	_		SHORT			3D SHOR	T 81	TS ST	ORT
	6001	SHORT	80TB	SHORT	BORB St	HORT 81	TB SH	SHORT 81			1		Ш		2	
	6002	NONE	80TB	NONE	BORB P6	580 81	-		\rightarrow			NONE 80RD		30 81	-	P680
	6004	SHORT	80TB	SHORT	BORB St	40RT 81	+	⊢	\rightarrow					H.	-+	HORT
	6000		8018		SOLKE N		-				_		+			NON FI
	6000		801B						2 2 2		2 6	NONE BURD		T T C C T T C C C T C C C C C C C C C C	2 0	SHORT
	6009	SHORT	80.18	SHORT	SORB SE	JORT 81	E S		+	011		011	-	011		TEM2011
	6010	SHORT	80 TB	SHORT		HORT 81	TB E		₩		-		μ.			00
7	6011	SHORT	80TB	SHORT		SHORT 81	-+	<u>-</u>			OTO		\vdash	00 81T		00
	6017	P47K	80TB	VONE STORY	30RB		2 2	F	_	P4'/K 8			_	-		
		TN-I FR 198X	200 a	TN-1 F81 3BX	20KB	TN-I IF 81 3BX1 81		TN-1 F8138X181	\perp	13X2 FGA	1	IN-FGA13X2 FGA BORD	+	TN-FGA19X2 FGA 81T		TN-FGA13X2 FGA
	ICA01	SAA52902P/08	80TB	*83C055BBP7192	30RB	2P/084	+-	3BP / 192	4	180	80TD F	BBP / 192	ļ.	580		
	IC102	NON	80TB	NONE	12	NONE 81	TB NONE		2			NONE 80RD			ļ	— 当
	LA04	TEM2011	BOTB	NONE	" I	FM2011 81		Ш		EM2011 8	0T0					·
	LA05	TEM2011	80TB	ZONE	-	011	_	ш		011	OTD				_	当
	LAUG	NONE TDE/D/JA	80 TB	RF4330AU	- -	TDE/D/7A - 01		4330AJ	81RB	CONE 8		TRE4330AU 80RD	-+-	NONE 81	_	TRE/BERAI
	103	TONE HALL	00 a	NONE IN THE PERSON NAMED I	- ~	Ĉ.	- Z	T 11/17/		CECCO	3,6		-		_	200 F
	L104	NONE	80TB	NONE NONE	1	NONE 81	1	ساي	B1RB NG		010			8170		
8	L105	TRF 9221	80TB	FRF9221	30RB TF	RF9221 81	18	9221		RF9220 8	010	9220		1220		9220
8	L108	TRF41004.	BOTB	FRF41004J	-	41004J	TB TR	410043	RB TF	(F41004J 8	10	RF41004J 80R	O TRF	41004J 811	0	TRF41004J
	161	TRF1239AV	80TB	IRF1239AV	- -	RF1239AV 81		1239AV	88	(F1239AV 8	010	RF1239AV 80R		1239AV 811	2 2	-1239AV
	1 702		80 8		SOKB SOKB		2 2		2 2		7 L L L			й Т Г	22	-\
	PH20	J WON	80 TB	SONE SONE	BORB PH	ONO JACK 2 81	12	NO JACK 2 81RB	28		0108 00108	ONE 80RI	E E	0 JACK 2 817	1 E	NO JACK 2
	P601		80TB	HONE	30RB EA	R JACK 3.5mm 81	TB EAR	JACK 3.5mm 81	<u></u>	1 1	N CITO	ONE 80R	D EAR	JACK 3.5mm 81T	D EAR	JACK 3.5mm &
	P801	POWER CO	CORD 80TB		BORB PC	DWER CORD 81	TB PO	WER CORD 81	AB PC	WER CORD 8	SOTO F	OWER CORD 80R	DO .	VER CORD 811	02	WER CORD
	QA09	NONE	80TB		30RB i NC	NE 81	IB NO	NE 81	28 N	NE 8	80 ID N	IONE 80R		E 81		~

T	LA04	TEM2011	80TB	NONE	BORB	TEM2011	8178	NONE	81RB	TEM2011	80TD	NONE 81		TEM2011 8	2	NONE
	LA05	TEM2011	1 1	1 1	80R	TEM2011	81TB	NONE	81RB	TEM2011	80TD				P	SONE
	LA06	NONE TBE/B/7A	- 1	TPE/E/74	80R	NONE TDE/D/JA-	8	TPE/B/74	81.8B	NONE TREVERSON	80T0	TEC/BEGA 20	80RD N		_	TRF4330AJ
	103	NONE NONE	- 1			NONE TACK	<u>م</u> و	NONE	0 2	NONE	OL CITO		-	NONE 0	2 6	NONE
	1104	1 N			AORB BORB		nβ		0 0 2 2 2 2		8070		SORD N			NON HANGE
	L105	TRF9221			BORB	TRF9221	+	TRF9221	8188	TRF9220	80TD	1220	1	220		TRF9220
8	L108	TRF41004J	_		80R	TRF41004J	1	TRF41004J	81RB	TRF41004J	80TD	TRF41004J 80	Ľ	0047		TRF41004J
	L161				80R	TRF1239AV	-	TRF1239AV	81RB	TRF1239AV	80TD	239AV		239AV	2	
	1701	NONE	80TB		80RB	NONE		NONE	81RB	NONE	80TD				13	NONE
	Z / 0.2	NON R	80TB	- 1	80RB	NONE Plone		NONE PIONE	81.8B	NON	901D		2 0		2	
	PG01		D C C	- 1	AORB A		nπ	S S S	0 a				- 1	AR JACK 3 Smm O		FABRIACK 3 Smm
T	P801	POWER COR	RD 80TB	POWER COR	D BORB	POWER CORD	81TB	POWER CORD	81RB	POWER CORD	8070	POWER CORD 80	BORD P	i Ö	+-	POWER CORD
	QA09	NON.	BOTB		80RB	NONE		NONE	81RB	NONE	OTO			NONE 8	31 TD	NONE
	QA13		80TB		80RB	W 1	84 TB	NONE 1	81RB	NONE		c	_		21.	
	Q103		8018		8088		90 10 10 10 10 10 10 10 10 10 10 10 10 10		84RB	LA/910		LA/910 NONE	80RD	A/910 8		A'/910
	Q108				BORB		94 P		81RB		J L		12		JE	
	0109	NONE			80RB		- -	NONE !	81RB	NONE NONE	80TD	NONE 8(80RD N	ONE	16	
9	0212	315-		1 1	80RB	25C1815-Y	11B	NONE	81RB	2SC1815-Y	OTD		(5-Y		NONE
	0302	25C1815-1		NON	BORB	2SC1815-Y	1 <u>T</u> B	NONE	-	<u>}-0</u>			(4)	315-Y	170	NONE
	0200	NONE		- 1	80RB	NONE NONE	m c	IB1Z31N NONE	81RB	IB1Z31N NONE		IB1Z31N 80	_	NONE 8		181231N
-	0800		alla anda	- 1	a chara		α n a				200				Ē	
	0614	NONE	80TB	- 1	BORB	NONE	178	NONE		NONE			+-	NONE	2 12	NONE
	RA10	P1K	80TB	1 1	BORB	P1K	118	NONE	81RB		801D		\vdash			NONE
	RA11	P1.9¥	80TB	- 1	BORB	P1.9X	<u>m</u> f		81RB				-			
	XAIG WAID		80 B		80KB		p d		2 d		80 ID	NONE SCIENCE S	SURD SURD SURD SURD SURD SURD SURD SURD			
	RA37	P27K	80TB	- 1 -	BORB	P27K	TB	NONE	-		_				15	NONE
	RA40	P1K	80TB	1 1	BORB	7 7		NONE					-		110	NONE
11	RA62	P22K	8018	P22K	80RB	P22K	81 TB	P22K							\rightarrow	P22K
0	KA/9		80TB		80RB	NON F			_			NONE 80	80RD			NONE
	2008	Z Z Z	900 g	- 1	00000	NON P1K	2 a	DIK PIK	2 a	7.337 P7.57K	- 1	V		7.55K	-	7.5K
	R107	NONE	80TB	1	BORB	NONE	-	NONE	_		1		\perp		-	P1K
	R120	NONE	80TB	1 .	BORB	NONE	+-	NONE	-		1 1				+	P1K
	R121	NONE	80TB		80RB	NONE	118	NONE	\rightarrow	¥	80TD	>			81TD P	P3.9K
-	27 Z		80 8		30KB		200		200			NONE SC			+	
	R127		80TB		BORB		i IB	NON F	_		- 1		-1			NONE
	R128	NON	BOTB	1 1	BORB	NONE	-	NONE	81RB				-		2	NONE
	R129	ENON I	80TB		80RB	NONE	(TB	NONE			\sqcup		-			NONE
	R131	W L	80TB		80RB	NON E	9	NONE	_	NONE NONE NONE NONE NONE NONE NONE NONE		NONE 80	-	NONE NONE NONE	2 5	NONE
11	R133		808		800KB		2 00 20 00 20 00				80 10					
	R165	NON TO	80TB		80RB	NONE	118	NONE	81RB		010	0	-	NONE	+-	NONE
	R166	NON	80TB		80RB	NONE	+	NONE	₩-		OTC		+	NONE 81		NONE
	R167	NONE	80TB		80RB	NONE	1TB	NONE	\vdash		OTO				110	NONE
	R168		80TB		80RB	NONE NONE NONE NONE NONE NONE NONE NONE	-	NONE	-			NONE 80		NONE NONE		NONE
	R170		80 TB		80RB		0 H	NON THE PROPERTY OF THE PROPER	+		80TD		-	ONE 091	Ę	NONE
	R172	NONE	80TB		80RB	NONE	1TB	NONE		ONE		NONE 80	SORD NO		1TD	Ю
	R173	NONE	80TB		80RB	NONE	118	NONE 1100		P270	80TD		_	P270 81		P270
	N 170	0 4 CN	an Da		SOKE BOBB	NONFI	n n	74 / 0 NON			2 6		_		2 F	
	R181	P220	80TB			P220	817B	P220			4		SORD P			P56
1:	R204	P750	80TB			P750	TB	NONE	-	P750	\vdash		_		P	ONE
	R220	т Х	80TB		80RB	P1K	118	NONE			-					NON
	R225	¥,0	80TB			71X	-	NONE PONE PONE PONE PONE PONE PONE PONE	\rightarrow	P1K		NONE 80	80RD P1	P1K 81		NONE
	R580	P10K	SO IB		- 1	F0.25			81RB	×	8070				2 5	
	R605	NONE	80TB					1/2R330			4			30	P	/2R330
	R606	NON	80TB		1 1		ш	NONE			\sqcup					NONE
	R609	NONE I	80TB		- 1	NONE		NONE					_			NONE
	R637		801B		- 1			NONE NONE	8 KB		80TD 7		80RD NG	NONE 81		NONE NONE
	R633	NON	80TB		1			NONE					+		1_	ONE
	R706	NON I	80TB		80RB	NONE	<u>m</u>	NONE			80TD	NON HOUSE	80RD N		0118 212 213	
	70/A		8018		- 1		18 g		20 a		_ \		SOR CANA			
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P56	NONE		NONE		VOINE 1 / 200330	NON THOU	J.NO.	15 GK) LNCN	J.O.	NON		NONE	NONE	OFWG1962M	FILTCF1031	NONE		TEN1012	TEM1012	NONE														****						Ε	
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